BRADY WHEN PERFORMANCE MATTERS MOST™

Cable Management Solution

User's Manual

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Preface

NetDoc™ is a web-enabled database package that helps you better document and manage your complete network. With this Cable Management Solution (CMS), you can document horizontal and backbone cables, hardware, assets, pathways, locations, users, and much more.

Information from **NetDoc™** can also be seamlessly exported into Brady **LABELMARK™** software to assist you in easily labeling your entire infrastructure. The documentation solutions, labeling solutions, and an assortment of printers will increase productivity, reduce costs, and improve user services in a very user-friendly environment.

The **NetDoc™** interface runs on Microsoft SQL Server (MSS). MSS is designed to support one or several users. Each database created will keep track of data associated with your infrastructure. When a change is made to your infrastructure, such as adding a new component, updating or removing components, you can make the change directly in **NetDoc™** using several different methods.

In addition, the ANSI/TIA/EIA 606A has changed standards for guidelines and classes of administration for telecommunications infrastructure. **NetDoc™** was built accordance to the new standards, simplifying your firm's transition to them.

Infrastructure Setup and Documentation

There are multiple ways to set up your company and its infrastructure. As an open, user-friendly CMS package, each organization can document and label according to their selected methods. See Appendix D for a flowchart showing one example of how you can setup and document the infrastructure for your company.

Documentation

Documentation for your reference when using **NetDoc™** is located on the application CD. In addition, you can click **Help→User Guide** from within the application to launch the User Guide. The CD contains the following documents:

- **User Guide:** A .pdf version of the user guide. The user guide can be launched directly from the application. It is also located on the **NetDoc™** software CD.
- **Administrators Guide:** A .pdf version of the Administrators Guide. The administrators guide is located on the **NetDoc™** software CD.

Technical Support Contact Information

- **Asia Pacific**: Monday - Friday, 9:30 a.m. - 5:30 p.m. (PST+8)
- **North America**: Monday - Friday, 5:00 a.m. - 5:00 p.m. (PST)
- **Europe/ROW**: Monday - Friday, 8:30 a.m. - 5:30 p.m. (GMT)
- **Web address**: http://www.bradycorp.com

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Chapter 1 - Exploring NetDoc™

Exploring the Application

The **NetDoc™** interface is comprised of several sections. To keep everything uniform, the look of the software remains the same throughout the application. The interface layout contains a navigator, spreadsheet view area, detail section, locator area, and helpful links. The **NetDoc™** environment was designed to satisfy all of your documentation needs, while remaining easy to use and navigate.

Note: See Appendix D for a suggested example of how to setup your company infrastructure.

Launching the Application

To launch the application:

1. From your browser, go to the **NetDoc™** *Main Page* and enter your **Login** and **Password**.
2. Click **Launch Application**.

Main Page

When you login to **NetDoc™**, the first screen you see is the Main Page which is the entry point to access all of the application's features. To make it easy to navigate between the application itself and the Setup tools and reports, every page in **NetDoc™** has a link back to the Main Page. The Main Page link is located near the top right-hand corner of all screens. You can also return to the Main Page by clicking the logo at the top of the page.

Links

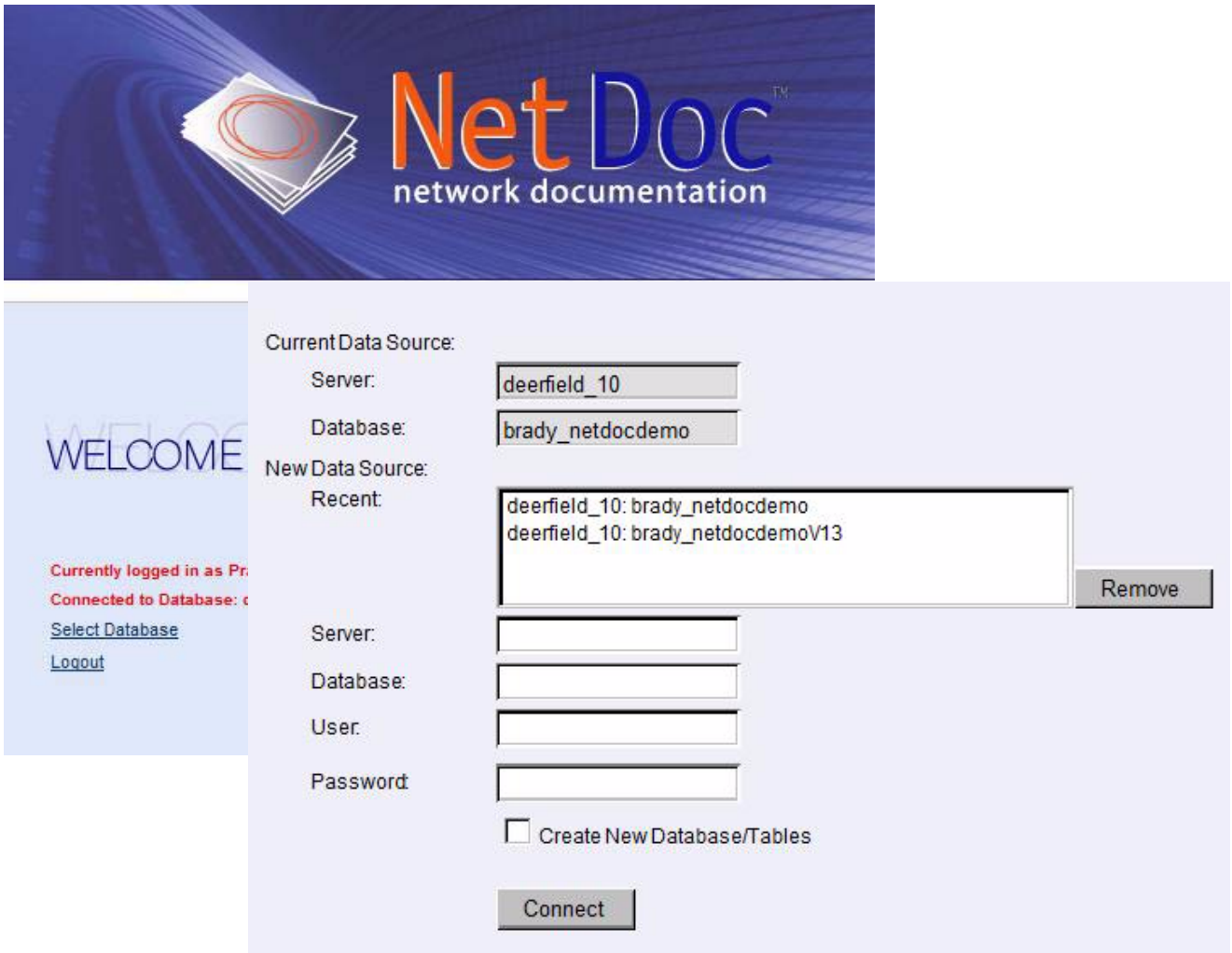
The *Main Page* links are located in two places:

- Under the “Welcome” message on the left side
- In a column of five menus along the right side.

The left side displays the name of the user who logged in and the name of the database to which **NetDoc™** is currently connected.

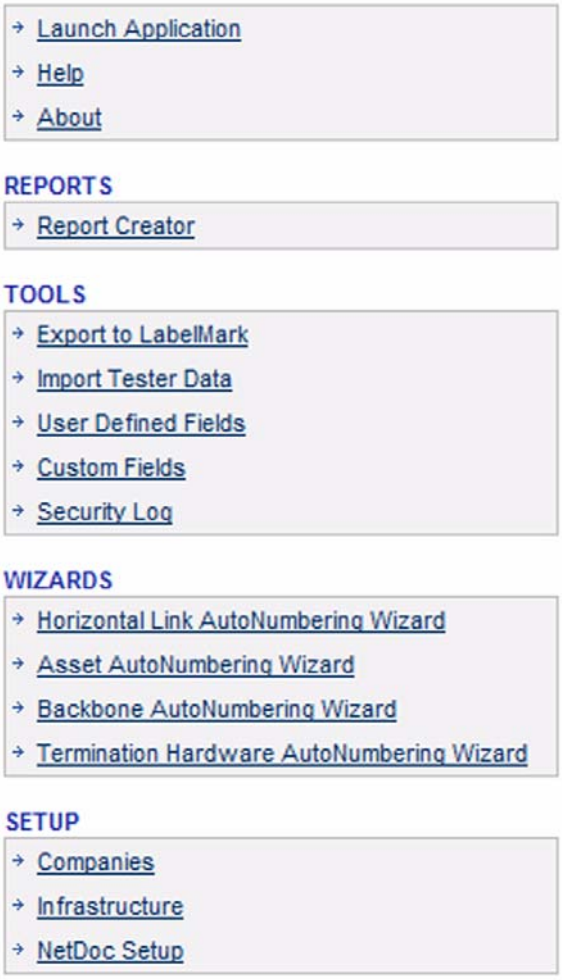
Note: The user name only appears in the software if security is turned on and is used. If a user’s security is not turned on, individual’s names will not display.

- **Select Database:** Switch between databases (if you have access) by clicking **Select Database**. In the pop-up window, enter the information requried to access another database.
- **Logout:** Logs you out of the application.



Menus

The Main Menu, on the right side of the *Main Page,* consists of five submenus. See *"Working with Menus" on page 1-30* for details. Following is a brief description of each menu link:



NETDOC menu:

Launch Application — Launches the main *NetDoc* area where you document network components.

Help — Opens online help feature.

About — Provides *NetDoc* version number.

REPORTS menu:

Report Creator — Lets you generate a variety of reports (see *"REPORTS MENU" on page 1-31* for specific report types).

TOOLS menu:

Export to LabelMark — Lets you export identifiers into the **LABELMARK™** application for label creation.

Import Tester Data — Lets you import test data in CSV file format.

User Defined Fields — Provides a library of fields that you can view and/or edit. These user-defined fields appear in the component detail views.

Custom Fields — Lets you add, edit, and delete fields for component tracking purposes. You can add custom fields to Assets, Backbones, Contacts, Horizontal Links, Pathway Tubes and Termination Hardware.

Security Log — Displays the user transaction log.

WIZARDS menu:

Each link opens the component-specific auto-numbering wizard which lets users create multiple identifiers of documented records with the same default information at the same time. See *"Workspace" on page 1-4* for details.

SETUP menu:

Companies — Lets you add, edit, or delete Companies in your documentation.

Infrastructure — Lets you add, edit, or delete items documented at the following levels: Campus, Outdoor Space, Building, Floor, Indoor Space, Racks, Faceplate, and Port infrastructure.

NetDoc Setup — Lets you Enable or Disable features (e.g., Pathways, Firestops, Grounding, Splicing), select Date and Monetary Format, and select two detail fields for Backbones, Assets, and Termination Hardware.

Application Areas

When you launch the application, the data is divided into four major sections. The following information describes each of these secitons.

Workspace

The **NetDoc™** workspace is divided into four major sections:

1 **Navigation Tree**: A navigation feature similar to Windows Explorer that lets you navigate quickly to any area in the database. See *"Navigation Tree" on page 1-5* for details.

2 **Location Info**: Displays basic information for the *Navigation Tree* level you have highlighted. See *"Location Info" on page 1-7* for details.

3 **List View**: Displays a spreadsheet-like table that lists the records in the chosen category for the currently highlighted *Navigation Tree* level. See *"List View" on page 1-8* for details.

4 **Detail View**: Displays details of the selected record from the *List View* table. See *"Detail View" on page 1-11* for details.

Navigation Tree

The *Navigation Tree* shows the physical and geographical layout of your infrastructure and lets you move around quickly and efficiently. No matter how complex your infrastructure, you can go anywhere within it from the Navigation Tree.

Note: The *Navigation Tree* functions similarly to Microsoft's Windows Explorer. Click the **+** plus sign at any level to display the next level (the + sign indicates that more levels are present, the – sign or no sign indicate that no additional levels are currently established).

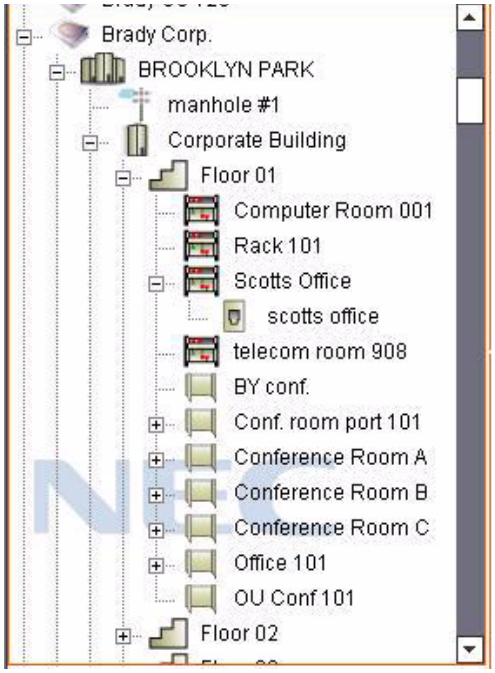
About the Navigation Tree

The *Navigation Tree* is displayed in the upper left pane of the workspace. Depending on what you select in the tree view, the List View is populated with information filtered according to the selected category. The Detail View contains the detailed information from the List view.

*Example: If you click the **Building** icon, then click the **Assets** selection in the drop-down field, all assets for your building are displayed in the **List View** spreadsheet. Clicking a floor icon or space icon will display assets specific to that floor or space.*

Note: Highlighting your company displays all assets in your company. This could be thousands of entries. To view your assets, we recommended that you select at the building level or lower to speed up the loading process.

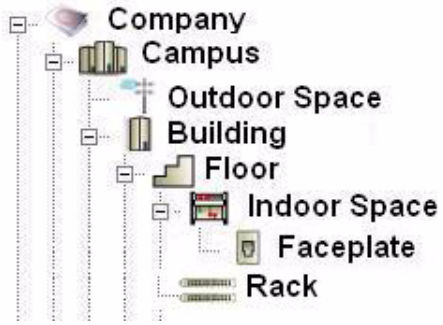
The *Navigation Tree* utomatically updates whenever entries are established within Company and Infrastructure areas. Company and Infrastructure options are created from the Setup menu on the Main Page. Once the tree is set up, you can easily locate, change, move, upgrade, or add to the tree. See *"Hierarchy Descriptions " on page 1-6* for details.



Hierarchy Descriptions

When you select a level in the Navigation tree, the selection is highlighted and the details for that selection display in the other sections of the Workspace. Also, when you hover your cursor over any item on the tree, a floating box opens with the name and type of infrastructure item. If the item is a Faceplate, the box will also include the ports connected with it.

The following illustrates the standard hierarchy for the Navigation Tree. A description of each level is described below.



Company The highest-level component and the starting point for managing your cabling infrastructure. Even if you only manage the infrastructure for a single company, you must define the company before setting up cabling infrastructure.

Campus If the company has only one location, create a single campus. If the company conducts business in a number of locations, this feature makes it possible to manage infrastructure specific to each location.

Outdoor Space You can set up an outdoor space such as a Manhole or a Utility Pole. After spaces are in place, specify cabling and hardware.

Building Each campus includes buildings containing spaces that house the infrastructure components. Your company may have one or more buildings that can be interconnected by cabling components.

Floor Floors are the next level of geographical infrastructure in Buildings.

Work Area Space All building (indoor) floor space is categorized as either a Work Area or a Telecommunication Space. A Work Area houses users and workstation assets, such as cubicles or offices.

Telecommunication Space A Telecommunications Space is where termination hardware or backbone assets reside.

Faceplate Usually attached to a Work Area such as an office. Although many cabling infrastructure elements can be added after the geographical infrastructure is set up, faceplates should be set up first.

Rack An open shelf structure, usually made of aluminum or steel, that is attached to a floor, ceiling or wall. Cables are laid in and fastened to the rack and connected to the equipment.

Location Info

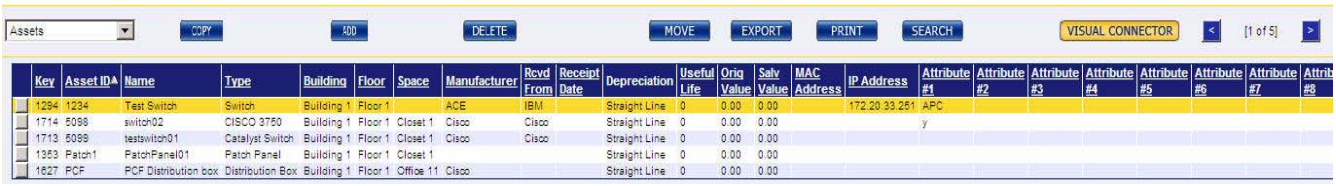
The *Location Info* section is located on the left side of the workspace under the Navigation Tree. Depending on where you are in the Navigation Tree, the Location Info section displays the **Company**, **Campus**, **Building**, **Floor** and/or **Space** for your current (highlighted) selection (see *"Hierarchy Descriptions " on page 1-6* for more detail.

List View

The List View is located in the upper right pane of the workspace and resembles a spreadsheet. The records displayed are based on your location in the Navigation Tree.

Note: Information displayed changes depending on the category selected and your location on the *Navigation Tree* (e.g., if you move to a higher level on the tree, details for that level and space will display in the List View).

Example: If you are at the building level in the Navigation Tree and select Assets in the drop-down field, all the records for Assets within that building will display.

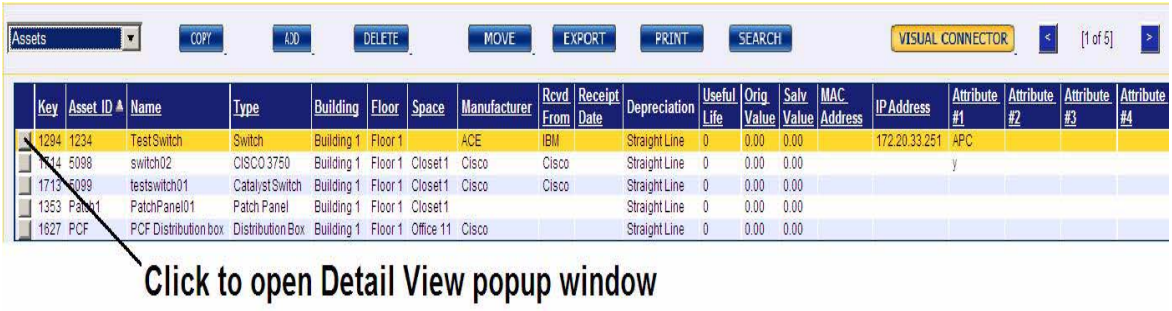


Key	Asset ID	Name	Type	Building	Floor	Space	Manufacturer	Rcvd From	Receipt Date	Depreciation	Useful Life	Orig Value	Salv Value	MAC Address	IP Address	Attribute #1	Attribute #2	Attribute #3	Attribute #4	Attribute #5	Attribute #6	Attribute #7	Attribute #8
1294	1234	Test Switch	Switch	Building 1	Floor 1		ACE	IBM		Straight Line	0	0.00	0.00		172.20.33.251	APC							
1714	5098	switch02	CISCO 3750	Building 1	Floor 1	Closet 1	Cisco	Cisco		Straight Line	0	0.00	0.00			y							
1713	5099	testswitch01	Catalyst Switch	Building 1	Floor 1	Closet 1	Cisco	Cisco		Straight Line	0	0.00	0.00										
1353	Patch1	PatchPanel01	Patch Panel	Building 1	Floor 1	Closet 1				Straight Line	0	0.00	0.00										
1627	PCF	PCF Distribution box	Distribution Box	Building 1	Floor 1	Office 11	Cisco			Straight Line	0	0.00	0.00										

Getting around the List View

- Choose a category from the drop-down list in the ***List View*** to display the records in the selected category for the current tree location. The drop-down list includes the following infrastructure categories:

- Click any item in the table to display detailed information for that entry in the **Detail View**.
- Click the button in the first column of the **List View** pane to display detailed view for that component. With this capability, you can display side-by-side component views, which you can minimize, expand, and move around. It also lets you move to another section of **NetDoc™** while keeping the detailed-view pop-up window(s) open.



- Sort column headings in ascending or descending order by clicking the column heading.

*Example: Choose **Assets**, then click the **Type** column. The assets sort in ascending order according to asset type. The up-arrow next to the column heading indicates an ascending sort order. Click again and the arrow points downward, indicating a descending sort order.*

List View User Buttons

Button	Description
	Copy lets you duplicate the item being copied. This provides an easier way of building specific network components.
	Add lets you create a new record in whichever area you have selected.
	Delete lets you delete a record.
	Move lets you quickly choose a new location in the Navigation Tree in which to move the selected item(s). For example, you can move an entire department from one place to another. **Move** cannot be used if the item is connected to any hardware. This button is only available on the Assets, Horizontal Links and Users windows.
	Export opens a drop-down list from which you can choose to export the data. The export options are: • To LabelMark (quick). See *"Export to LABELMARK™ (quick)" on page 1-39* • To LabelMark (full). See *"Export to Brady LABELMARK™" on page 1-34*. • To Clipboard • To Excel
	Print enables you to print details of an individual record (i.e., not everything in the list) as an HTML-formatted report in your Internet browser.
	Search opens another window containing the records currently in the List View table, where you can enter a search string and initiate a search of all of the records.
	Visual Connector (quick connect) opens a visual connection window where you can graphically connect your all of your cross connects (see *"Visual Connector" on page 1-27* for details).
	Previous and **Next** let you navigate between pages of spreadsheet views.
	Counter (located between the *Next* and *Previous* buttons) indicates the number of viewable items within a selected area. When the counter is visible, you can navigate between pages of spreadsheet views. The Counter only displays if there is more than one page.

Detail View

When an item is selected from the *List View* table, the Detail View displays the details documented for the selected record. You can change to a different record by selecting a different row in the table, either by scrolling through the records using the arrow keys or by clicking on a record with your mouse. The display for the *Detail View* is linked to the selected item in the *List View*.

Note: Information displayed in the *Detail View* changes depending on the category selected and your location on the *Navigation Tree* (e.g., if you move to a higher level on the tree, details for that level and space will display in the Detail View). The Detail View contains details of the first record in that group by default, or the last record you highlighted.

Example: If Termination Hardware is selected, the **Detail View** *shows tabs Termination HW Info and Port/Position Details.*

Note: The tabs displayed depend on the category and component selected. In addition to the other tabs, all Detail Views contain both **Info** and **Notes and Attachments** tabs.

The *Detail View* shows the detailed attributes of the selected record, and information about how that record is connected to other cabling elements. The following describes the information contained on the tabs:

- **Info:** Displays detailed attributes of the selected record.
- **Financials:** Displays values, depreciation, dates, etc. about the selected component.
- **Connected Assets**: Lets you associate co-located assets, hubs and ports together.
- **Ports or Port/Position**: Displays all available port details for the asset (e.g., available or used, connected cables). From this tab, you can also perform a port-level trace, establish up to 10 custom fields at the port level, and add notes.
- **Connected HLs:** Displays all horizontal links connected to this asset.
- **Connected Backbone**: Lists backbone cables connected to the horizontal link and lets the user connect backbone cables to that horizontal link.
- **Notes and Attachments**: Displays all associated notes and attached items entered by the user.
- **Hardware Sequence**: Displays the hardware sequence for the selected cable.
- **Pathways Used**: Does the same for Pathways containing HLs.
- **Key Sheet**: Displays only if the horizontal link is a voice link. Contains data input by the user about the phone connection.

Using the Application Tools

Notes and Attachments

Notes let you enhance your documentation needs by relaying information to others, saving specific notes for future use and providing an aid for all users in recalling necessary information. Notes also help you better document your network by providing additional space for valuable information. Attachments can be added at any level as a link to an outside file to better enhance your documentation needs. By using the Attachment capability correctly, you can link directly to files on your client workstation for an easy-to-access view.

Revision Log

The **Revision Log** is a view-only information area; no fields can be changed. Throughout the application, the **Notes and Attachments** tab lists the history of changes to the selected record:

Note: The user stamp only appears in the software if security is turned on and is used. If a the user stamp is not turned on, the Time/Date/User stamp will not be included entry.

- **Added By**: Indicates the name and date/time stamp of the user who originally documented this item. Once an item is created, this entry never changes.
- **Edited By:** Indicates the name and date/time stamp of the last user to save a change to this item.

Notes

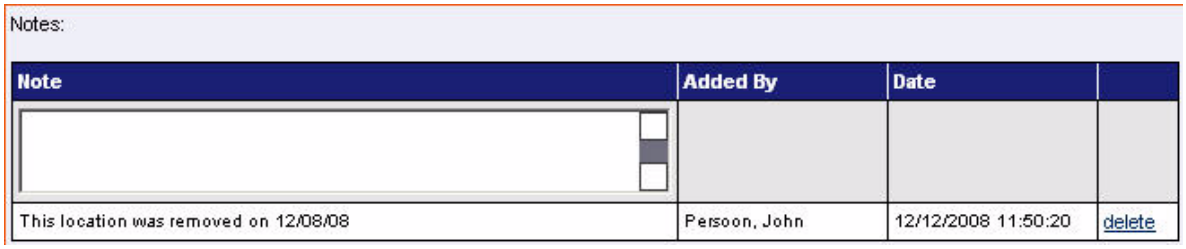
In **NetDoc™**, notes can be added at any level of your infrastructure throughout the application. The Notes capability is located on the **Notes and Attachments** tab in the *Detail* pane.

> **Note:** Depending on your selection, you can also attach notes down to the port level of a piece of hardware/asset and to the strand level of a backbone cable directly from the tab windows in the Detail pane.

To add Notes on the Notes and Attachments tab:

1. Click the **Notes and Attachments** tab.
2. In the *Notes* area, type your notes and comments into the **Note** dialog box.
3. Click **Save** to permanently save your notes. The new note will move below the *Note* box and a Time/Date/User stamp will be included with the note.

> **Note:** The user stamp only appears in the software if security is turned on and is used. If a the user stamp is not turned on, the Time/Date/User stamp will not be included with the note.



To delete Notes from Notes and Attachments tab:

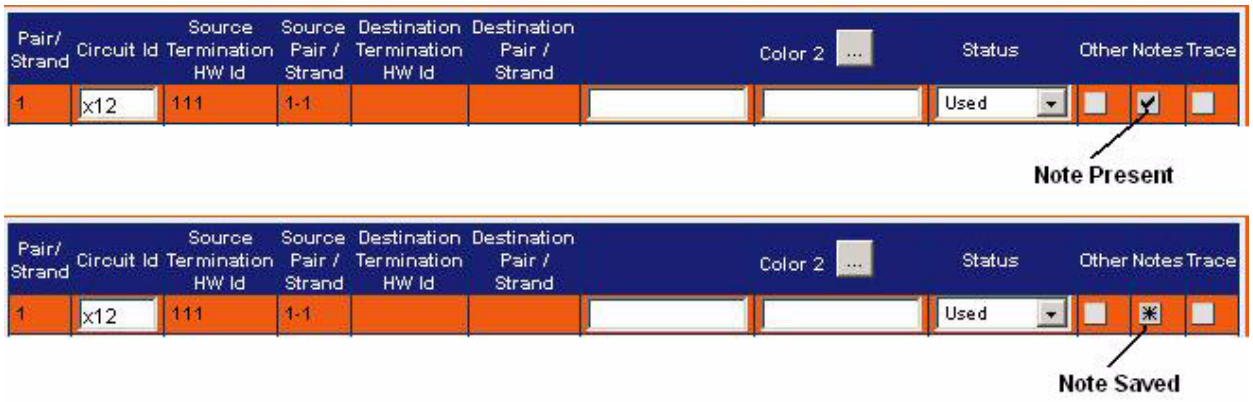
1. In **NetDoc™**, locate the item where your note(s) are located.
2. Click the **Notes and Attachments** tab.
3. Click **Delete** next to the Note you want to remove.
4. At the prompt, click **OK** if you are sure you want to delete the file.
5. Click **Save** to save and update all components once deletion has been completed.

Adding Notes at Port or Strand Level

To add notes at the Port or Strand Level:

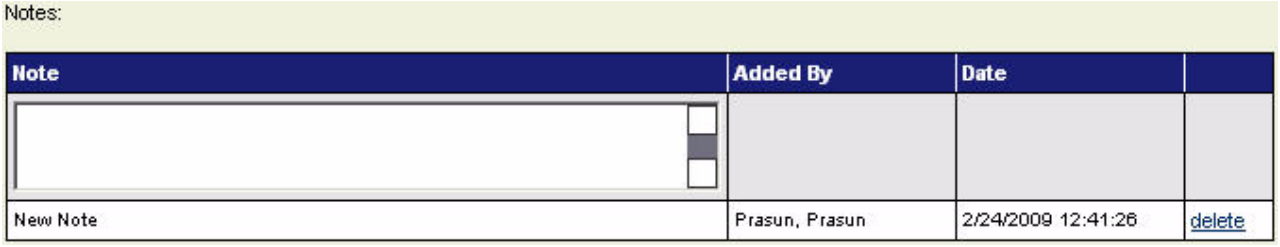
Within these tabs, to the far right of each row will be a Notes column.

1. On the *Port/Position* or *Pair/Strand Details* tab, click the **Notes** button on the right of the selected item.
2. In the *Notes* field, type your notes and comments into the **Note** dialog box.
3. Click **OK** (or click **Cancel** to cancel the note). The pop-up window closes and a check mark displays in the Notes column indicating that a note is present.
4. Click **Save** to permanently save your notes. Once saved, an asterisk (*) appears in the **Notes** box indicating a saved note for that item.



To delete Notes at the Port or Strand Level:

1. On the *Port/Position* or *Pair/Strand Details* tab, click the **Notes** button to the right of the selected item.
2. In the pop-up window, click **Delete** for the note you want to delete.
3. Click **OK** to confirm the deletion, or click **Cancel** to cancel the deletion.
4. Click **OK** to close the pop-up window. A checkmark displays in the *Notes* box indicating that it needs to be saved before the deletion is complete.
5. Click **Save** to permanently delete the note. Once saved, the checkmark is removed from the **Notes** box.



Attachments

The attachment capability is located throughout the application and at every level of your infrastructure navigation tree. The Attachments section is located in the *Detail View* on the **Notes and Attachments** tab.

Note: You must have a viewer installed for the selected file type on your client machine to view the attachment in an HTML formatted window.

You can use attachments to better illustrate needed information about your network. Attachments may include network drawings (e.g., Visio, AutoCAD), digital photos, MS Excel and MS Word documents, PDFs and more.

To add an Attachment:

1. From any *Attachments* area, click **Add**.
2. If desired, type any specific comments in the **Comments** section of the pop-up window.
3. To select the file, click **Browse**, navigate to your attachment, then click **Open**.
4. Click **OK**. The attachment is uploaded to the *Attachment* area and a Time/Date/User stamp is included with the file.

Note: The user stamp only appears in the software if security is turned on and is used. If the user stamp is not turned on, the Time/Date/User stamp will not be included with the file.

5. When you get the message stating “Attachment successfully attached,“ click **OK**.
6. Click **Save** to permanently save all attachments and changes.

⚠ **CAUTION!**

If an attachment has the same name as one that is already added in the same section, the second attachment will overwrite the first attachment. To prevent this, make sure you choose a different name for the attachment file.

To view an Attachment:

1. Locate your attachment in **NetDoc™**.
2. Click **View** next to your attachment. The file will launch in an HTML-formatted window.

Note: You must have a viewer installed for the selected file type on your client machine to view the attachment in an HTML formatted window.

3. Close the HTML window when you are finished viewing the file.

To delete an Attachment:

1. Locate your attachment in **NetDoc™**.
2. Click **Delete** next to your attachment.
3. At the prompt, click **OK** if you are sure you want to delete the file.
4. Click **Save** to save and update all components.

Note: Deleting an attachment only deletes the link to its source location. It does not delete the actual file.

Multi-View / Multi-Task

NetDoc™ allows multi-viewing and multi-tasking while navigating throughout the application. You can open detail views of multiple items for use during your working session.

Pop-up windows are an essential part of **NetDoc™** and enhance your working capability. You can minimize any pop-up window for later use and continue working. You can then restore the pop-up window without having to return to where the screen was originally opened.

Example: Go to the Main Page and click Report Creator. Minimize the creator screen and launch the application to continue working. Later, when you need another report, restore the creator screen and create the new report without going back to the Main Page.

To open multiple views:

1. In the *List View* pane, click the button to the far left of the item you want to view. A popup window displays the Detail area for the selected item.
2. Size and/or move the pop-up window as desired.
3. Open another item for side-by-side comparisons, as needed.

Note: You are not limited to the same area. For example, you can open a piece of hardware, minimize that screen and then open a backbone cable. You can then size both windows for comparison viewing.

Window Sizing

The sections of the workspace in the normal application view can be resized as desired. The Workspace screen is divided into four areas: the Navigation Tree, the Location Info area, the List area, and the Detail area.

To resize workspace areas:

Note: Workspace areas can be resized repeatedly and manipulated according to user need.

1. On the **NetDoc™** *Main Page*, click **Launch Application**.
2. To use the grab-and-drag capability, place the mouse pointer over any of the dividing lines between the areas until the mouse changes to ⟷.
3. Hold down the left-mouse button and drag the line until the area is the size you want.

Note: Many users want to view several items in the spreadsheet view. To do this, grab the dividing line between the List and Detail areas and drag it down to increase the number of items shown in the spreadsheet view.

Search

Records shown in the *List View* table of the **NetDoc™** window can be searched across multiple fields, using whatever search text is entered.

To use the search function:

Note: From the search window, you can change the category and perform another search. However, to change the level on the Navigation Tree, you must close the search results window and highlight the new location on the Navigation Tree.

1. In the *Navigation Tree*, highlight the hierarchy level you want to search (e.g., Company, Building, Floor, etc.).
2. From the *List View* drop-down list, select the category to search.
3. Click *Search* and choose whether to search for **Data** or **Circuits**.
4. A search window opens type your search string in the **Search Text** box, then click **Search**.
   - **Data**: Searches all fields in the database for the search string.
   - **Circuits**: Searches only circuits in all locations. The search for circuits is based on the defined IDs rather than the backbone cable name. The search criteria are: Circuit ID, Backbone Cables, Horizontal Links.

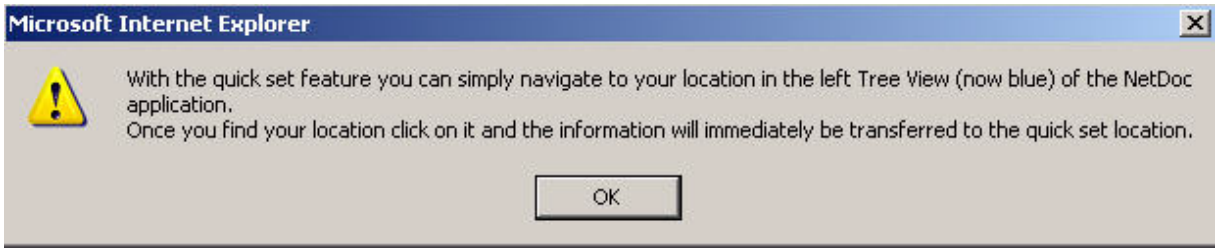
Note: The results data displays only those records containing your search text (if there are no records with that text, a message box will alert you).

5. From the search window, you can also:
   - **Export:** Export the results data to **LABELMARK™** or Microsoft Excel, or copy the data to the **Clipboard**.
   - **Print:** Print Detail View of search results or print a report for the currently highlighted item in the table.
   - **Search:** Perform another search for Data or Circuits.
6. To sort the search results, click a column heading to sort the data in ascending or descending order.
7. Click the **View Details** box in the first column of any item to open the Detail View for that item and make any changes.

Quick Set/Quick Insert

Shortcut buttons exist throughout the application. These shortcuts let you quickly choose a location for a component or, insert a component in the Cable Path.

Note: When you click on the **Quick Set** or **Quick Insert** button, the *Navigation Tree* turns blue. You can choose a location from which to incorporate the information for that location into the current selection's detail record.

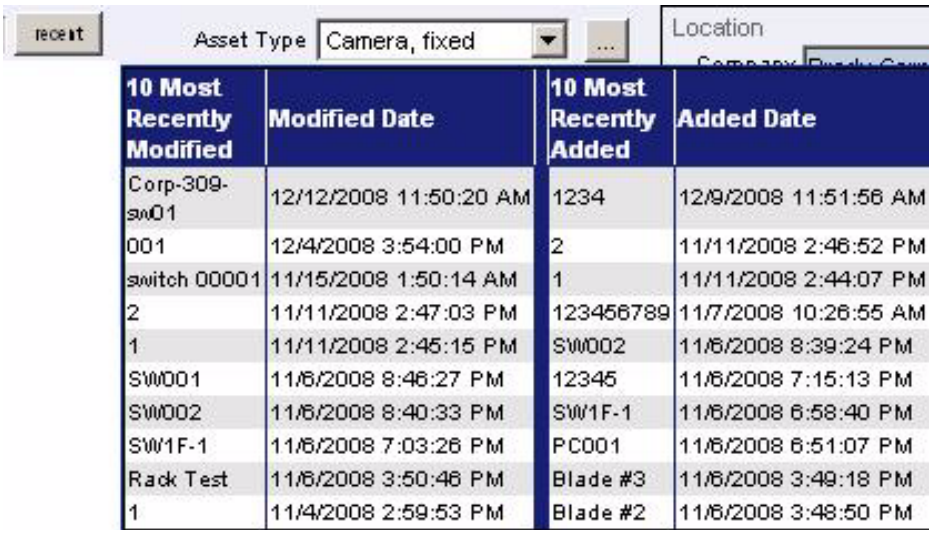

Microsoft Internet Explorer
With the quick set feature you can simply navigate to your location in the left Tree View (now blue) of the NetDoc application.
Once you find your location click on it and the information will immediately be transferred to the quick set location.
OK

Most Recently Added / Modified

The **Recent** button appears in many fields in the *Detail View*. When you place your cursor over this button, a floating window displays the following for the selected component category:

- **10 Most Recently Modified** items and **Modified Date** (date and time stamp)
- **10 Most Recently Added items** and **Added Date**

Note: This information is helpful when adding or modifying component information.



10 Most Recently Modified	Modified Date	10 Most Recently Added	Added Date
Corp-309-sw01	12/12/2008 11:50:20 AM	1234	12/9/2008 11:51:56 AM
001	12/4/2008 3:54:00 PM	2	11/11/2008 2:46:52 PM
switch 00001	11/15/2008 1:50:14 AM	1	11/11/2008 2:44:07 PM
2	11/11/2008 2:47:03 PM	123456789	11/7/2008 10:26:55 AM
1	11/11/2008 2:45:15 PM	SW002	11/6/2008 8:39:24 PM
SW001	11/6/2008 8:46:27 PM	12345	11/6/2008 7:15:13 PM
SW002	11/6/2008 8:40:33 PM	SW1F-1	11/6/2008 6:58:40 PM
SW1F-1	11/6/2008 7:03:26 PM	PC001	11/6/2008 6:51:07 PM
Rack Test	11/6/2008 3:50:46 PM	Blade #3	11/6/2008 3:49:18 PM
1	11/4/2008 2:59:53 PM	Blade #2	11/6/2008 3:48:50 PM

Copy

The Copy capability is available throughout the application and is always located in the *List View* pane. Copy allows a selected item to be completely copied into the Detail View area where you can then modify any of the information. This is helpful for creating new components that closely resemble already-built components. If properly used, Copy will minimize typing time and user errors.

Note: The Copy feature copies the information on the Info tab and all set location information but does not copy connections.

To use the Copy function:

1. In the *List View*, choose the component you want to copy.
2. Click **Copy**. A ****new record**** row is added to the *List View* table and the data you copied is displayed In the *Detail View* pane.
3. In the *Detail View* pane, make the necessary changes in the desired fields.
4. When finished, click **Save**. The component information you copied and modified will populate the ****new record**** row.

Note: Before saving the new duplicated item, make sure that you change all fields that must be unique from the copied original. **NetDoc™** will display messages if you try to save the copied data without making the necessary changes. You cannot add the new record until the required changes are made.

Circuit and Pathway Trace Tool

This tool lets you view all of the components of an individual circuit or pathway in both text and graphic format. Tracing is helpful in identifying the source of a problem in the network or in viewing a circuit or path in diagram form. A trace can be performed from a port on an asset or hardware component, strand of a backbone cable, horizontal cable, and pathway screen.

With the Trace tool, you can choose a component and view a detailed list details of its infrastructure, view a modifiable diagram of the infrastructure, click to change the trace point, table and diagram information and print the detailed information and graphical diagram.

Note: Although the basic functionality works the same, the options shown on the trace diagram will vary, depending on what component is selected.

The Trace Tool is accessible on the following tabs in the *Detail View* screens:

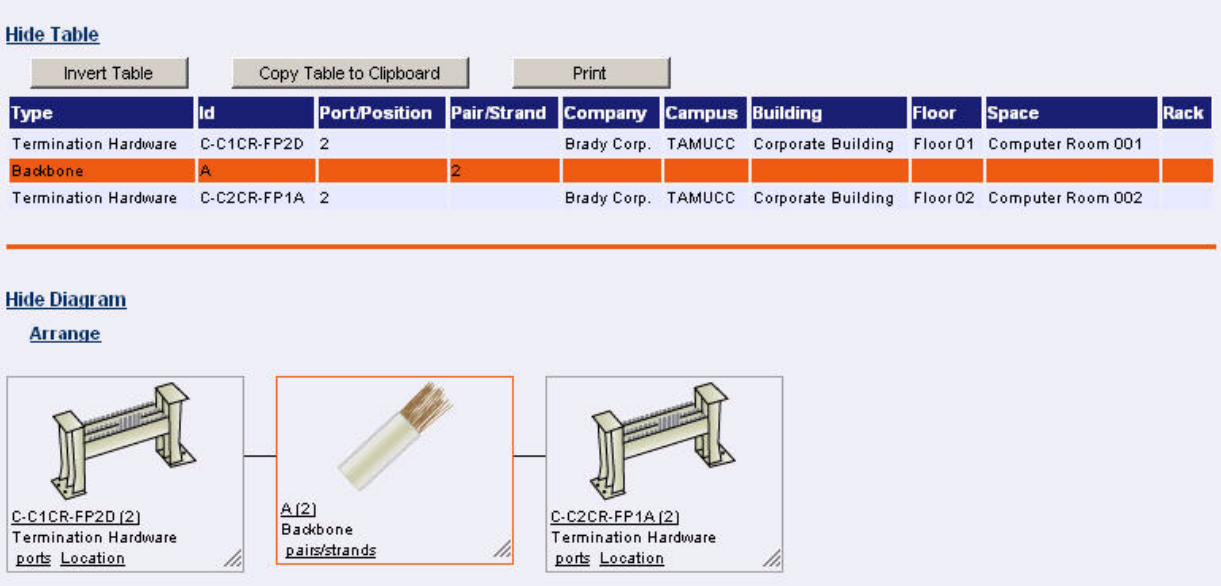
- **Assets:** Ports tab
- **Hardware:** Port/Position tab
- **Horizontal Cables:** Hardware Sequence and Connected Backbone tabs
- **Backbone Cables:** Pair/Strand Details tab
- **Pathways:** Tubes tab

The *Trace* window consists of the following two main elements:

- **Table:** Lists 1) detailed location of each component, 2) highlighted item in the table which is the component from where the trace is being conducted, and 3) other items showing the circuit or path in both directions until the endpoints.
- **Diagram:** Illustrates each component and connection. The graphic also displays the component ID, a link to view the Navigation Tree showing its location (hardware only), and links to view all ports, pairs/strands or pathways connected to that component — both used and available. Lines linking the images indicate how the components are connected, with bold lines indicating a cross-connection at that point.

To access the Trace tool:

1. From the *Main Page*, click **Launch Application**.
2. In the *List View*, highlight the trace point component.
3. In the *Detail View* for the selected component, click the appropriate tab.
4. Choose the component you want to view.
5. Click the box in the *Trace* column for the component you want to view. A separate window opens displaying the details in both table and graphic formats.


Hide Table
Invert Table
Copy Table to Clipboard
Print
Type | Id | Port/Position | Pair/Strand | Company | Campus | Building | Floor | Space | Rack
Termination Hardware | C-C1CR-FP2D | 2 | | Brady Corp. | TAMUCC | Corporate Building | Floor 01 | Computer Room 001 |
Backbone | A | | 2 | | | | | |
Termination Hardware | C-C2CR-FP1A | 2 | | Brady Corp. | TAMUCC | Corporate Building | Floor 02 | Computer Room 002 |
Hide Diagram
Arrange
C-C1CR-FP2D (2)
Termination Hardware
ports Location
A (2)
Backbone
pairs/strands
C-C2CR-FP1A (2)
Termination Hardware
ports Location

Print Trace Results

The print function sends whatever is currently displayed in the *Trace* window to the printer.

To print the trace results:

1. Make sure the elements you want to print (table and/or diagram) are showing in the **Trace** window.
2. Click **Print**.

Trace Table Elements

Use these procedures to work with the Table elements in the Trace window.

Show/Hide Table

To hide the table or diagram:

1. From the *Trace* window, click the **Hide Table** or **Hide Diagram** link. When hidden, the link will change to *Show Table* or *Show Diagram***.**
2. Click again to re-display the element.

Invert Table

To show components listed in reverse order:

1. From the *Trace* window, click **Invert Table**.

   Note: Inverting the table only changes the order of the table — not the diagram.

2. Click again to reverse the order.

Copy Table to Clipboard

The copy function copies the current information to the Windows clipboard where it can be pasted into another application such as Windows Excel.

To copy the table to the clipboard:

1. Make sure the table elements you want to copy are showing in the **Trace** window.
2. Click **Copy Table to Clipboard**. The contents are copied to the Windows clipboard.

Trace Diagram Elements

Use these procedures to work with the Diagram elements in the Trace window.

Show/Hide Diagram

To hide the table or diagram:

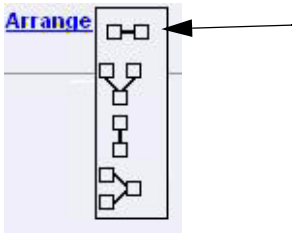
1. From the *Trace* window, click the **Hide Table** or **Hide Diagram** link. When hidden, the link will change to *Show Table* or *Show Diagram***.**
2. Click again to re-display the element.

Arrange the Diagram

The default arrangement for the graphic diagram is a straight line from left to right. You can click **Arrange** to change it to one of three other arrangements, or you can manually rearrange the components.

To change the diagram structure:

1. Hover your mouse over the **Arrange** link to open a floating menu.
2. Click one of the structures shown in the menu. The images and connecting lines will change to reflect that structure.



3. (Optional) Rearrange the diagram manually using the drag-and-drop feature to move the images around the screen. The connecting lines will automatically move with the component illustrations. This capability can be used to replicate the actual physical layout of a component.

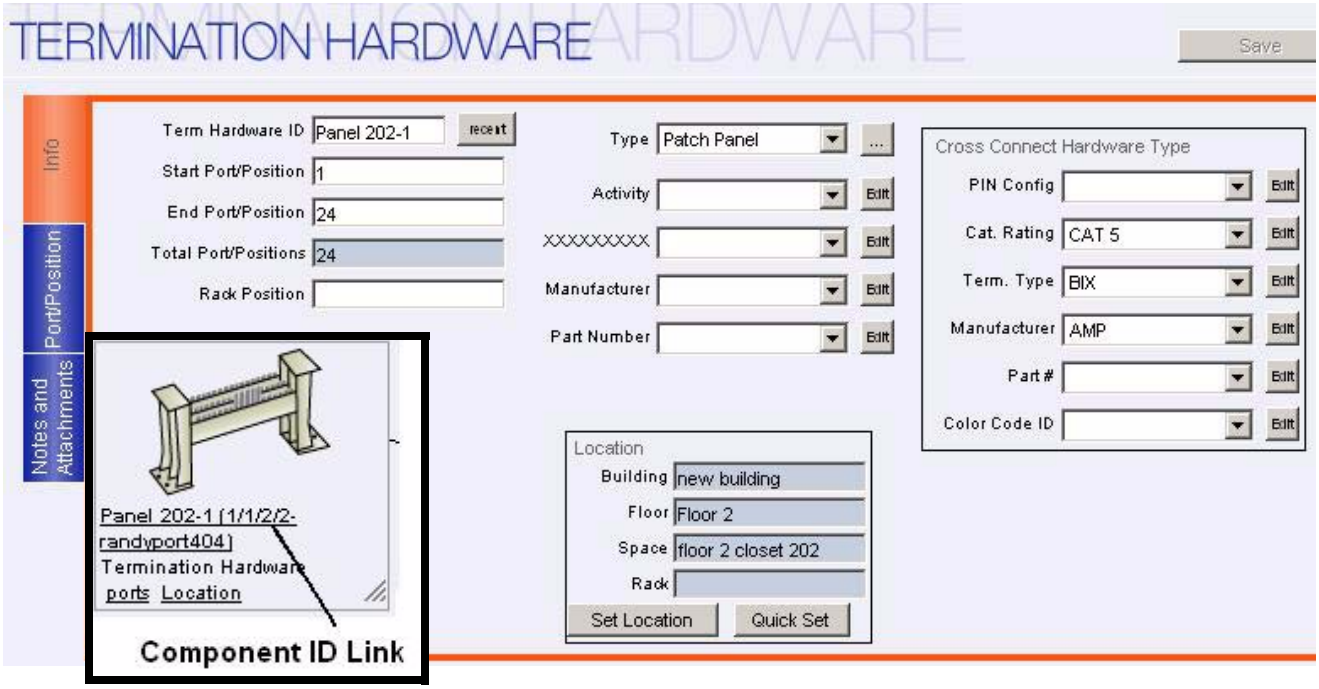
Note: A manual rearrangement of the diagram remains only while you keep the window open. Once you close the Trace window, the diagram will revert to the default structure.

View Component Detail

From the *Trace* window, you can display the Detail View information for any component shown in this window.

To view a component's Details View information:

1. Click the component **ID link** in the box containing the illustration.
2. A pop-up window will display the **Detail View** for that item. The Detail View also contains tabs that let you quickly filter through all of the component details.



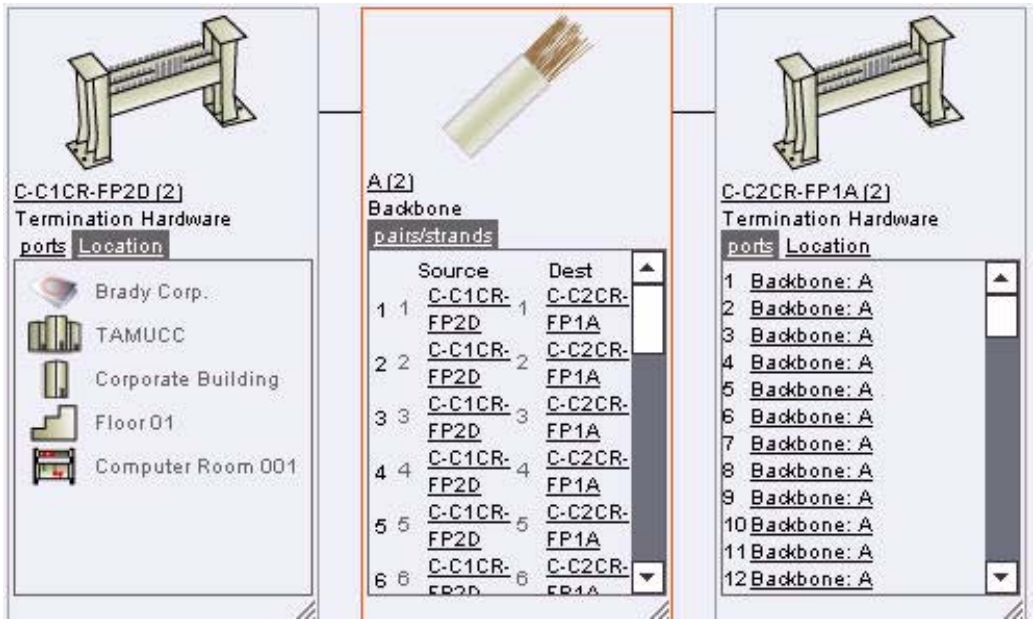
Change the Trace Point

You can change the trace point from within the diagram by choosing another port, pair/strand, or pathway for any component. This will change the information on the table and the diagram.

To change a trace point:

1. In any of the illustration boxes, click the **ports**, **pairs/strands**, or **pathways** link for that item. A menu of all items connected to that component displays, including those both *used* and *available*.
2. Click the link for the item you want to trace. The highlighted row in the table changes to the new component and the diagram changes to show the components for the new selection to its endpoints.

Note: You can also open a new trace point table/diagram in a pop-up window to see the different paths side-by-side by **holding down the Shift key as you click on the link** in step 2.



Visual Connector

The Visual Connector tool lets you visually connect all of your cross connections using a graphical representation of your hardware and hardware assets.

With this tool, you select your assets and use the drag & drop capability to quickly connect to the ports from one asset to another.

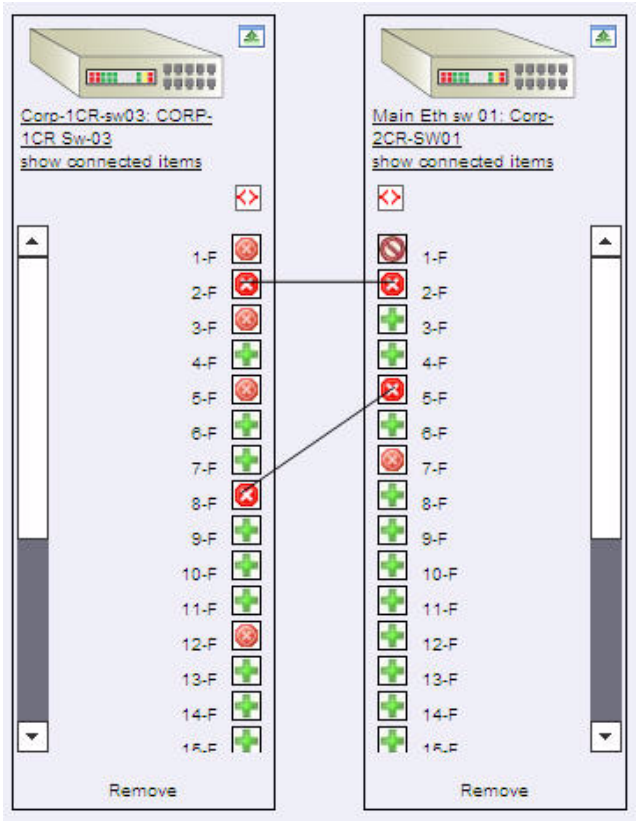
To use the visual connector:

1. In the *List View* area, click **Visual Connector**.
2. Select an asset from the drop-down list. Options are:
   - Asset
   - Termination Hardware
   - Horizontal Link
   - Backbone (not yet available)

3. Select the asset type from the drop-down list, then click **Show**. The asset displays in the *Detail* area.
   - To remove all assets, click **Clear**. All assets/hardware/links will be cleared from the *Detail View* area.
   - To remove an individual asset, click **Remove** at the bottom of any of the displayed assets.
4. Repeat Step 3 to select another asset from the drop-down list.

5. To connect the port(s), drag your cursor from a port on one asset and drop it on the port of another asset. The connection between ports will display in the *Detail* area. If you cannot connect an asset a message will display.
6. To delete a connection, click on the connecting line between the two ports. At the prompt asking if you want to delete the connection, click **OK**.

Note: For a more clear graphical display, you can move the port connectors from one side of the asset to the other by clicking the <> button in the asset box.



Note: The *Port Legend* describes the symbols used for the ports.

Port Legend			
	Available		Available (not saved)
	Used		Used (not saved)
	Can't Connect (why not?)		Used (connected item not shown)

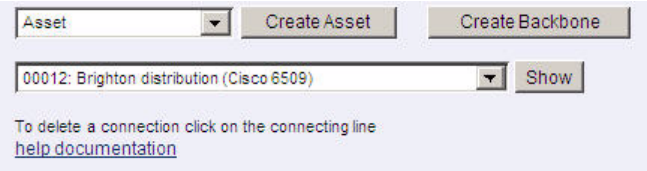
7. When done, click **Save** to save your changes.
8. To return to your starting page, click **Back to Table View** or to return to the main page, click **Main Page**.

Add Asset from Visual Connector Screen

If you need to create another asset for your connections, you can easily do that without leaving the *Visual Connector* screen.

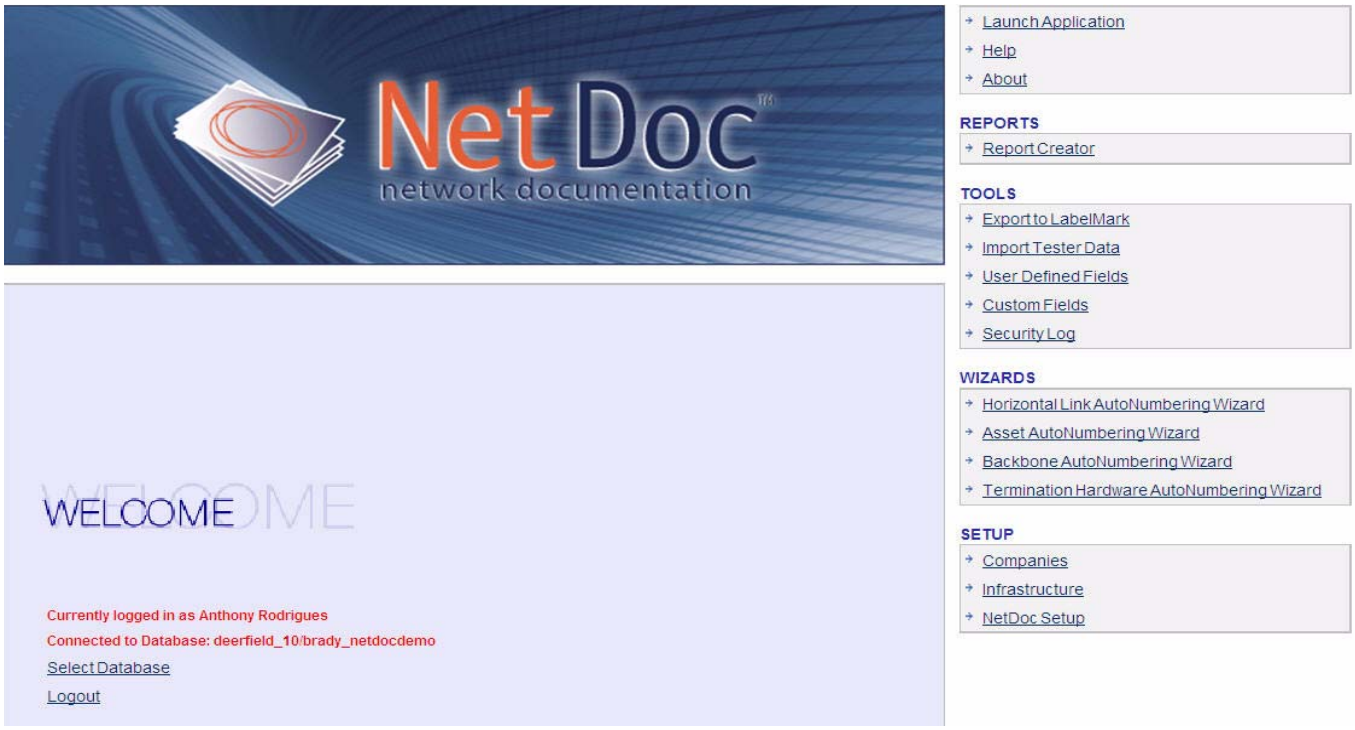
To add an asset:

1. Select the type you want to add (asset, termination hardware, horizontal kink or backbone).
2. Click **Create Asset** or **Create Backbone**. The appropriate *Detail* window will display in a separate pop-up window.
3. Enter the information for that asset type. See the following sections for details:
   - *"Termination Hardware " on page 1-82*
   - *"Assets" on page 1-88*
   - *"Horizontal Links (HL)" on page 1-92*
   - *"Backbone Cables" on page 1-105*
4. Enter the required information, then click **Save**. You will now be able to connect to the new asset or backbone.



Working with Menus

In addition to a link to the application, the **NetDoc™** main page contains links to a variety of tools, wizards, Set up information and other application features. The following includes information and procedures on how to use the features for each of these links.



REPORTS MENU

The Report Creator feature, designed to reinforce and enhance the documentation capabilities in **NetDoc™**, lets you print comprehensive reports about your infrastructure. The Report Creator link is located on the Main Page and can be used to access all built-in **NetDoc™** reporting capability.

Report Creator

The following reports can be viewed and printed using the Report Creator:

- **Asset Report:** Details Accounting Information and Attributes of the asset. Can be filtered by Date Received, Type and Model, and Department and Location of Asset.
- **Backbone Report:** Shows all backbones in a given location and can be sorted by Backbone Type. The report detail shows pair/strand usage and attached backbone devices.
- **Horizontal Link Cable Report:** Can be filtered by Date Tested, HL Type, or Location.
- **Key Sheet Detail Report:** Can be arranged by Department Name or Location.
- **Mainframe Report:** Can be filtered by Controller/Gateway or Connection Rating and also be grouped by PU ID.
- **Network Backbone Asset Report:** Can be filtered by Backbone Asset Type, Backbone Device, or Backbone IP Address.
- **Pathway Report:** Shows pathways selected according to Pathway Source or Pathway Destination. The information can be grouped by Pathway Type.
- **Space Report:** Can be filtered by Department Name, Connection Rating, or Location.
- **TR Report**: Can be filtered by Backbone Type, HL Category, TR Type, or HL Rating.
- **Contact Report**: Can be filtered by Last Name, Department, or Location.

Detail Report

An additional Detail Report is available from the List View in **NetDoc™**. The Detail Report provides all details for a specific cabling category (e.g., Asset, Termination Hardware, Horizontal Link, etc.). You can generate this report by selecting the record in the List View and clicking the Print Details button. (See *"Print Report Details"*.)

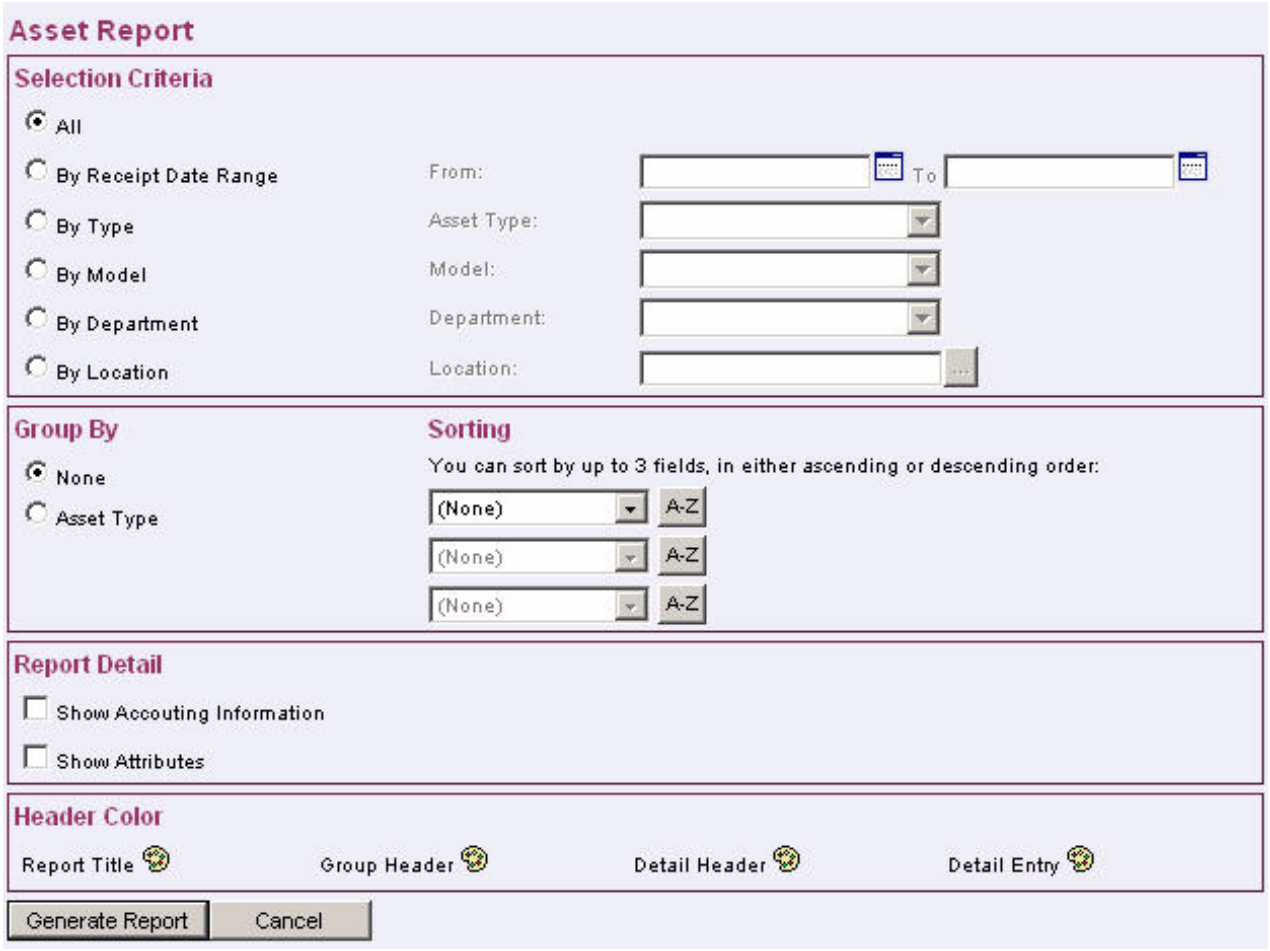
Generate a Report

Each report has selection criteria specific to that report.

Example: The Horizontal Link Cable Report window contains radio buttons to select All Criteria, By Date Tested, By HL Type, and By Location. If you select:

- *All: the report includes all Horizontal Links stored in* **NetDoc™**.
- *Filter By Date Tested: the report includes HLs that were tested within the date range you specified in the From and To fields.*
- *Filter by a specific HL Type: the report shows only the HL type you choose (e.g., Voice will only show the voice horizontal links).*
- *Filter by Location: the report will list all horizontal links for the location you specified.*

Note: The contents of the criteria selection window will vary depending on the type of report you are running. The figure shows an Asset Report window.



To generate a report from Report Creator:

1. On the *Main Page*, click **Report Creator**. The Report Creator window displays the available reports.
2. Click the link or name of the report you want to run. A window specific to the selected report displays
(e.g., the Asset Report window). There are four sections in the report window in which you can customize the information in your report and how it is displayed.
3. Choose **Group by/Sorting** options:
   a. **Group By**: Select **None** or **Type**.

Note: You can group the data on a report by None or Type (e.g., Asset, Backbone, Pathway, etc.). Some reports have more group options (e.g., Mainframe Detail Report has options for None, Controller/Gateway, Location, and PU ID).

   b. **Sorting**: Choose a sort criteria for the first field, by selecting from the drop-down list. Click **AZ** to sort the data in ascending or descending order. Repeat for additional sorting.
   c. **Report Detail:** Click the radio button for the report details you want.

Note: The Report Detail option is specific to the type of report you are running and may not appear on all menus (e.g., the Asset Details report, includes Show Accounting Information and Show Attributes. The Space report includes Show Faceplates).

   d. **Header Color**:

- In the *Header Color* section, click (use color icon).
- From the color palette, select a color for each of the headings: **Title**, **Group Header**, **Detail Header**, and **Detail Entry**.

4. Click **Generate Report**. The report will open in HTML format in your default web browser.
5. From the HTML window, print the report or save it as an HTML file.

Print Report Details

You can print out all detailed information for a specific item from the *List View* section.

To print detailed information:

1. Go to the record you want to print.
2. In the *View Details* section, click **Print>Details**. The *View Detail* section for the selected record opens in your default Internet browser.
3. Print the report from the browser.

TOOLS MENU

The *Main Page* contains a **Tools** section with links to the following functions you can perform in **NetDoc™** (see the following sections for detailed descriptions):

- *"Export to Brady LABELMARK™" on page 1-34*
- *"Import Tester Data" on page 1-40*
- *"User Defined Fields" on page 1-44*
- *"Custom Fields" on page 1-47*
- *"Security Log" on page 1-50*

Export to Brady LABELMARK™

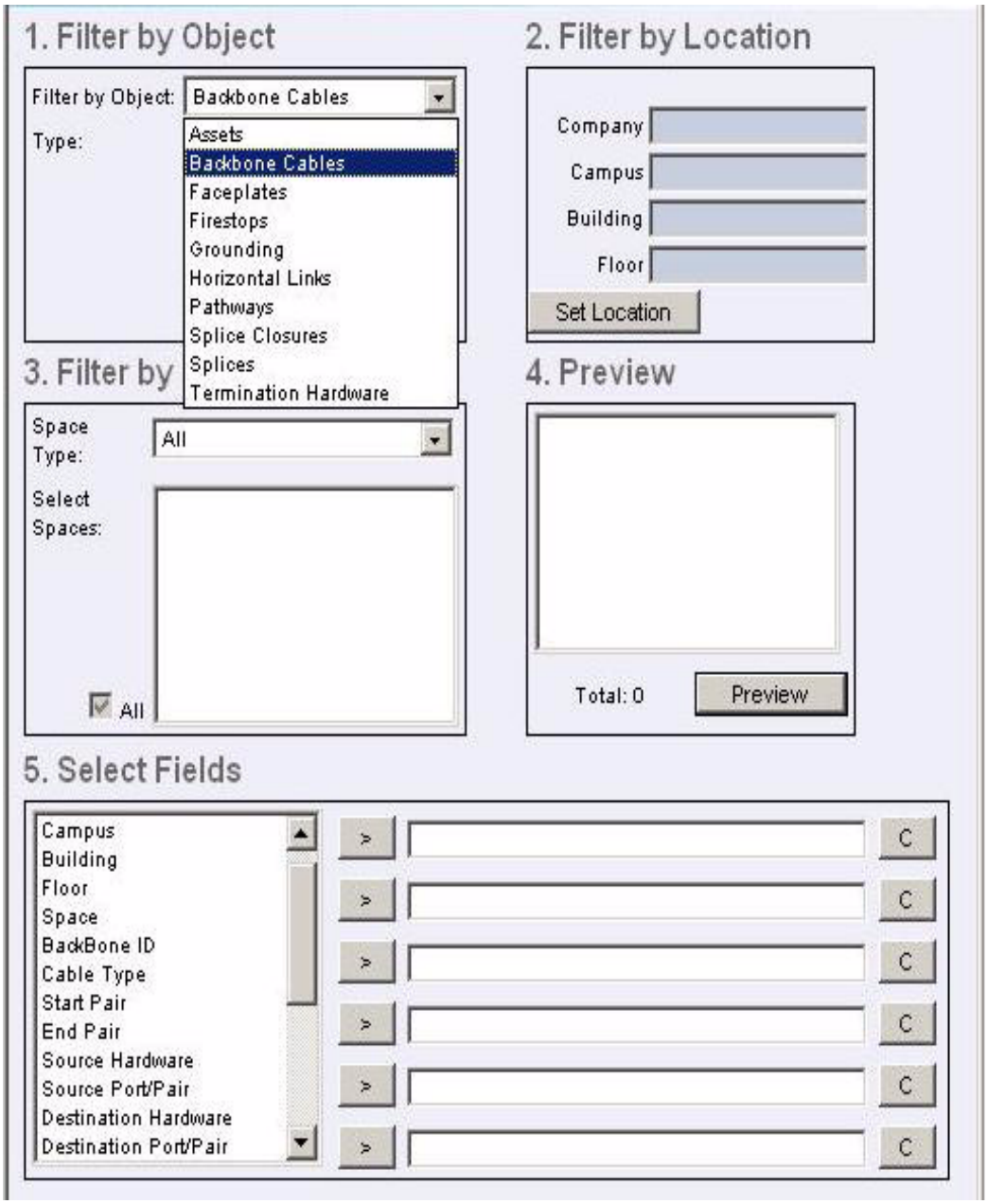
Brady **LABELMARK™** is a label-design application that interacts closely with **NetDoc™**. By using the two applications together, you only need to enter the identifiers for your infrastructure once. This ensures proper creation of your identifiers and lets you create the correct labels for those components.

Note: The **LABELMARK™** application also can be run independently of **NetDoc™**.

The *Export to LabelMark* tool passes tracked infrastructure-components information and created identifiers from **NetDoc™** to the **LABELMARK™** application.

The information and identifiers sent to the **LABELMARK™** application are completely defined by the end-user. Once the identifiers are acquired, the user can operate the **LABELMARK™** application as usual, with access to all normal functionality for label creation. The identifiers built and viewed within the **NetDoc™** application become exclusively available for exporting into **LABELMARK™** through the following process:

Note: NetDoc™ is a web-enabled application that is not installed on the client machine; however, **LABELMARK™** is installed on the client side. The *Export to LabelMark* feature will only operate on machines with **LABELMARK™**installed.


1. Filter by Object
Filter by Object:
Backbone Cables
Type:
Assets
Backbone Cables
Faceplates
Firestops
Grounding
Horizontal Links
Pathways
Splice Closures
Splices
Termination Hardware
2. Filter by Location
Company
Campus
Building
Floor
Set Location
3. Filter by
Space Type:
All
Select Spaces:
All
4. Preview
Total: 0
Preview
5. Select Fields
Campus
Building
Floor
Space
BackBone ID
Cable Type
Start Pair
End Pair
Source Hardware
Source Port/Pair
Destination Hardware
Destination Port/Pair
>

To export to Brady LabelMark™ (full)

You can access any of these options from the *Main Page* under **Export to LabelMark**, or from the *Export* drop-down list on any **List View**.

Note: For older versions, you may have to follow on-screen instructions to allow an ActiveX control to process before **LABELMARK™** can launch. This occurs because **NetDoc™** is web enabled and **LABELMARK™** is a client-installed solution. The new solution allows **LABELMARK™** to view **NetDoc™** (and vice versa) as an MTS web-enabled safe application. Either way, the solutions will work together and the on-screen instructions, if shown, will step you through the process.

1. On the *Main Page*, click **Export to LabelMark**. The **NetDoc – Export to LabelMark** pop-up window will appear, with 5 numbered steps.
2. Enter or select the appropriate information for each of the following fields:
   - **1 - Filter by Object:**
   - *Filter by Object*: Select the object for your labels.
   - *Type:* Select the type of objects for which to create labels. You can keep this as **All** or choose from a list of options. The type options vary based on the object selected.
   - **2 - Filter by Location:**
   - Click **Set Location** to browse through the *Navigation Tree* and select the location where the work is being conducted. Once you choose the location, click **Accept**. The Step 2 fields will automatically populate with the selection made.
   - **3 - Filter by Space:**
   - In the *Space Type* drop-down field, select a space type. You can keep this as **All** or select specific space(s). The Step 3 window will automatically populate with the selection made.
   - **4 - Preview:**
   - Click **Preview**. The Step 4 window will display a list of identifiers for review before the export is conducted.
   - **5 - Select Fields:**
   - Select up to three fields in any order to export into **LABELMARK™** by highlighting a selection and clicking **>** to insert it into the adjacent field

Note: The top-most field will print first on all labels, with the others printing in descending order. To clear a field, click **C** and re-enter a selection or leave the field blank.

3. When all five steps are complete, you can select any of the following options:
   - Load Settings
   - Save Settings
   - To Excel
   - To LabelMark

Load LABELMARK™ Settings

The **Load Settings** feature lets you browse to a previously-saved label file and load those settings.

To load settings:

1. From the *Main Page*, click **Export to LabelMark**.
2. In the export window, click **Load Settings**.
3. Click **Browse**.
4. Browse to the location of your previously-saved export file, then click **Open**.
5. Click **OK** to load the settings.

Note: You can also use previously-saved settings to create a new label file with a new location, but with the same settings. Load the saved label file, change the location, and save the file with a new name.

Save LABELMARK™ Settings

The **Save Settings** feature lets you save your label settings to a file that can be used later.

To save settings:

1. From the *Main Page*, click **Export to LabelMark**.
2. Complete the steps to *"Export to Brady LABELMARK™" on page 1-34*.
3. When the setup is complete, click **Save Settings**.
4. In the *File Download* window, click **Save**.
5. Browse to the location where you want the file saved, then click **Save**.

Export to Excel

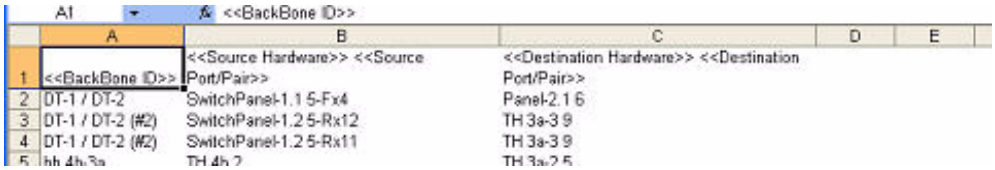
The **Copy to Excel** feature lets you export the selected data directly into Excel with the appropriate column headers.

To export to Excel:

1. Complete the steps to *"Export to Brady LABELMARK™" on page 1-34*.
2. Click **To Excel**. The application automatically launches Excel and imports the data into the spreadsheet.

Note: The items selected in Step 5: *Selected Fields* create the column headings in Excel. The data within those fields populates the spreadsheet.

3. As desired, you can modify it, save it as an Excel spreadsheet, and/or print it from Excel.



Export to LABELMARK

1. Click **To LabelMark**. This will prompt *NetDoc* to locate your **LABELMARK™** application on your client machine.

Note: If **LABELMARK™** is not installed on the client machine, the export will be aborted. Otherwise, the application window will display and you can use the fully functioning application to select your printer, label type and size for the identifiers being created, and the other features of the application.

Export to LABELMARK™ (quick)

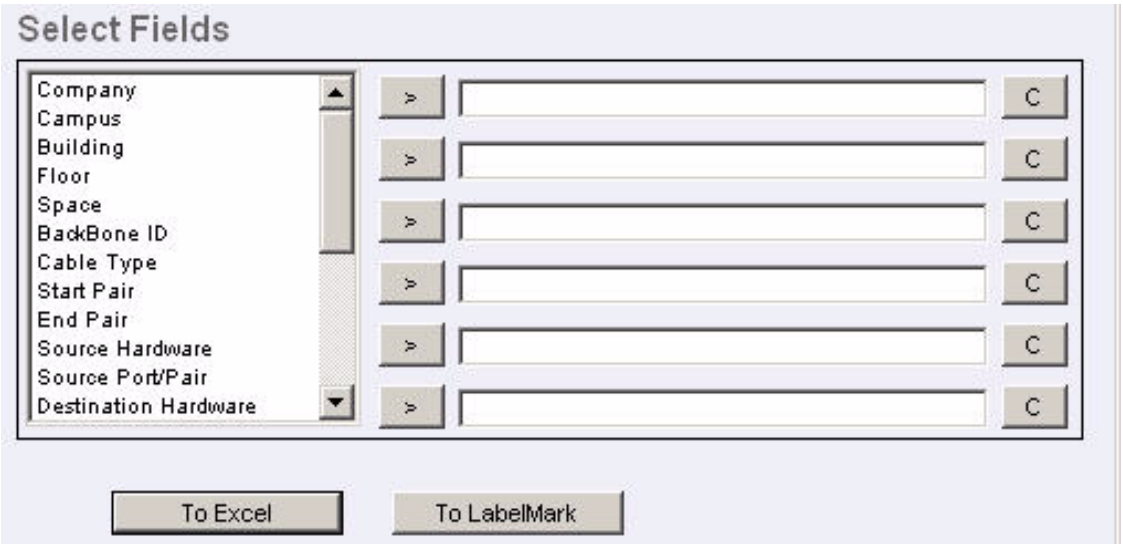
Use this procedure to quickly export labels to **LABELMARK™** without setting up a complete label file.

To export to LabelMark™ (quick):

1. From any *List View*, click **Export>To LabelMark (quick)**.
2. From the Select Fields list, choose the fields you want to print on your labels.
3. If you want to export the data to an Excel file, click **To Excel**.

   - or -

   If you want to the data to export to your **LABELMARK™** application, click **To LabelMark**.



Import Tester Data

The **Import Tester Data** tool is located on the *Main Page*. **NetDoc™** works with all testers and accepts test results in CSV file format. When a CSV file is imported, **NetDoc™** stores all of the information in its appropriate location, as designated by the importing user.

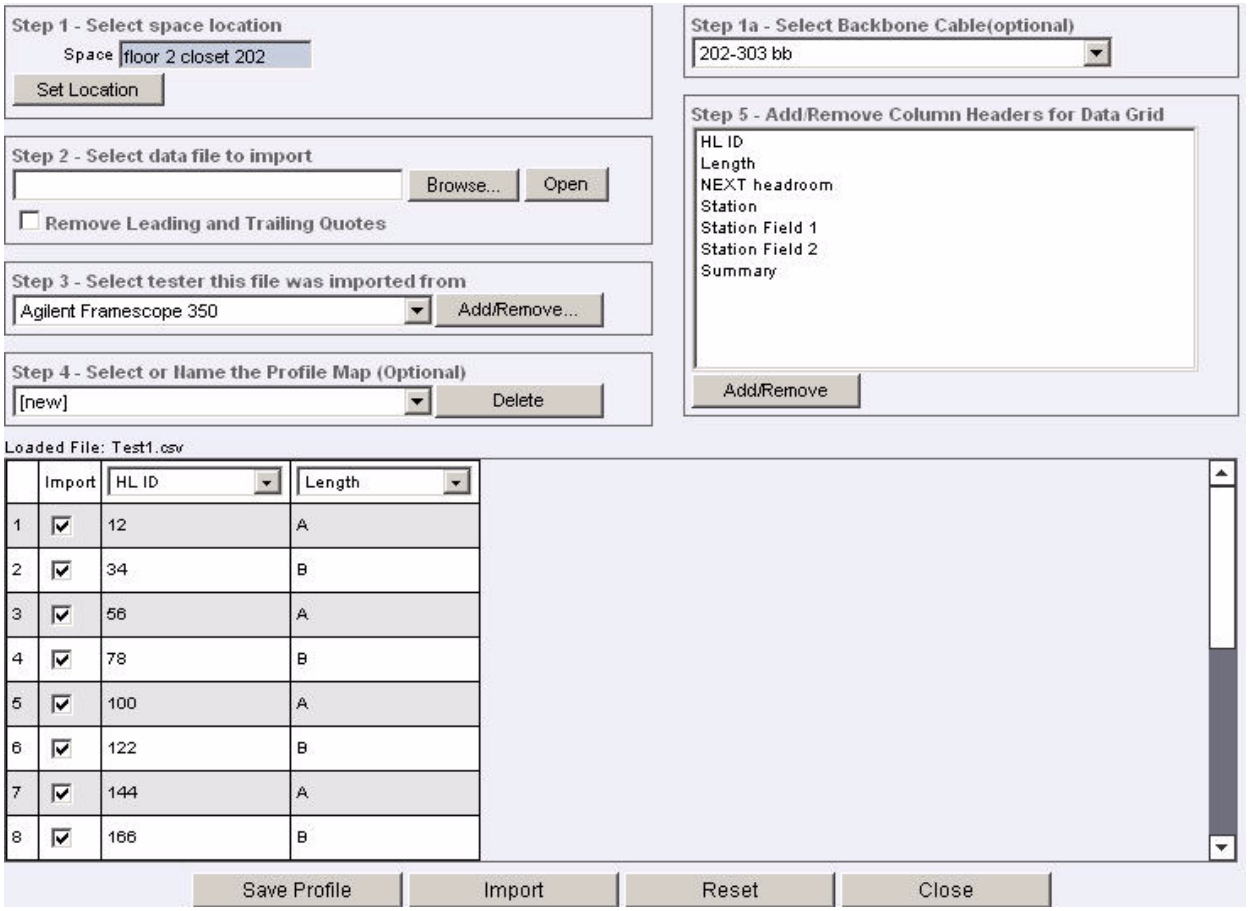
Although importing tester results is performed completely through the *Import Tester Data Main Page* link, reviewing a cable's test data is accomplished through the cable end by selecting **View Tester Data**. When importing test results, you may save both a Profile Map (optional) and a Set Name (required).

- **Profile Map**: A saved profile saves all of your formatted column headers when importing the test results. The next time you import data from the same formatted tester, the previously-saved profile can be selected. This eliminates the need to rebuild column headers and keep them intact during the import process.
- **Set Name**: The saved set name names and saves specific data imported. When a cable is selected for referencing of test results, the user will be prompted for the set name to bring up the corresponding results.

The unique feature about the Import Tester Data tool is that what is imported is completely definable by the user.

Example: The tester may have hundreds of columns of information, but keeping the test results in **NetDoc™** *may only require five columns of pertinent information. This flexibility lets you quickly gain access not only to test results, but to the relevant information within those results that are specific to your documentation purposes.*

Note: You should save and maintain all test results in their original format for future need. Using the application's capability, you can modify the amount of information needed for quick reference, however, you should always save the original formatted results in case they are ever needed.


Step 1 - Select space location
Space floor 2 closet 202
Set Location
Step 1a - Select Backbone Cable(optional)
202-303 bb
Step 2 - Select data file to import
Browse...
Open
Remove Leading and Trailing Quotes
Step 5 - Add/Remove Column Headers for Data Grid
HL ID
Length
NEXT headroom
Station
Station Field 1
Station Field 2
Summary
Add/Remove
Step 3 - Select tester this file was imported from
Agilent Framescope 350
Add/Remove...
Step 4 - Select or Name the Profile Map (Optional)
[new]
Delete
Loaded File: Test1.csv
Import
HL ID
Length
1 12 A
2 34 B
3 56 A
4 78 B
5 100 A
6 122 B
7 144 A
8 166 B
Save Profile
Import
Reset
Close

Importing Tester Data

1. From the *Main Page*, click **Import Tester Data**. Numbered steps will display.
   - **Step 1 - Select space location:** Click **Set Location** to browse through the *Navigation Tree* and select the location to which the results should be associated. Once you choose the location, click **Accept**. The *Space* field is automatically populated.

   Note: This step is needed for both Horizontal and Backbone Cable test results.

   - **1a - Select Backbone Cable (optional):** From the **Select Backbone Cable** drop-down menu, select the Backbone Cable needed.

   Note: This step is only needed if importing test results for a Backbone Cable.

   - **Step 2 - Select data file to import:** In the *Select data file to import* area, click **Browse** and navigate to CSV file you want imported, then click **Open**.

   Note: If your test results have leading and trailing quotes – remove them by selecting the check box below the Step 2 field ***before opening*** the results for loading. The word "**Loading...**" will display at the bottom of the screen. Your test results should appear within seconds as the system processes the imported file.

   - **Step 3 - Select tester this file was imported from:** Click **Add/Remove**. In the *Add/Remove* window, build your tester manufacturer. When complete, click **Close** and make sure the appropriate name appears in the Step 3 field.
   - **Step 4 - Select or Name the Profile Map:** Skip this step.
   - **Step 5** – **Add/Remove Column Headers for Data Grid:** Click **Add/Remove**, then in the *All Fields* window, highlight the column headers you want to keep for the final import into the database. Click the arrows to move the highlighted headers to the right or left side of the pop-up window. These selections will appear in the expanded Import screen table.
2. In the *Import* screen table, click the drop-down menu and select the header you just created.

   Note: Data in columns without a header will not be imported. This ensures your file will only contain the information you specify for your final import.

3. Click **Save Profile**, enter a profile name, then click **Save**. Your profile name will display in the field
   Select or Name the Profile Map.
4. Click **Import**.
5. In the pop-up window, type in a (set) **Name**, **Tested By** name, and any other notes for this test set.
6. Click **Import** again. The file will begin the process of importing into the selected location.
7. Click **OK** when the message displays indicating the import was successful.

8. Click **Close** to close the import pop-up window, or **Reset** to reset all steps and begin another import.

Notes:

- Make sure the test data includes the HL ID you have assigned in **NetDoc™**. You will be able to enter that ID in the tester machine.
- If you do not specify the correct HL ID in the tester, the test data will not be located when you look for it in **NetDoc™**.
- **NetDoc™** does not reformat the tester-machine data. The data will be in the format exported by your specific tester machine.
- See also *"Viewing Tester Data" on page 1-43*.

Viewing Tester Data

To view test data:

1. On the *Main Page*, click **Launch Application**.
2. From the *List View* drop-down menu, choose the category of the item you want to view.
3. Highlight the item whose test results you want to view.
4. In the *Detail View* area, click **View Test Data**.
5. In the pop-up window, select the **Set Name** for the test results being referenced.
6. The window will display the test results imported under the referenced set name.
7. Click **Print** to print the test results, or **Close** to close the window.

Matching Tester Data

If your **NetDoc™** Cable ID matches the Cable ID in your imported Test Results, and if it is a complete match, the application will find them when you click the Set Name for viewing tester data (see *"Viewing Tester Data" on page 1-43*).

Note: The cable should highlight and be located automatically. If your Cable ID ***does not*** match any of the Cable IDs imported, the set will still appear, but a message will display indicating that the cable ID could not be found.

Deleting Imported Tester Data Sets

To delete imported tester data:

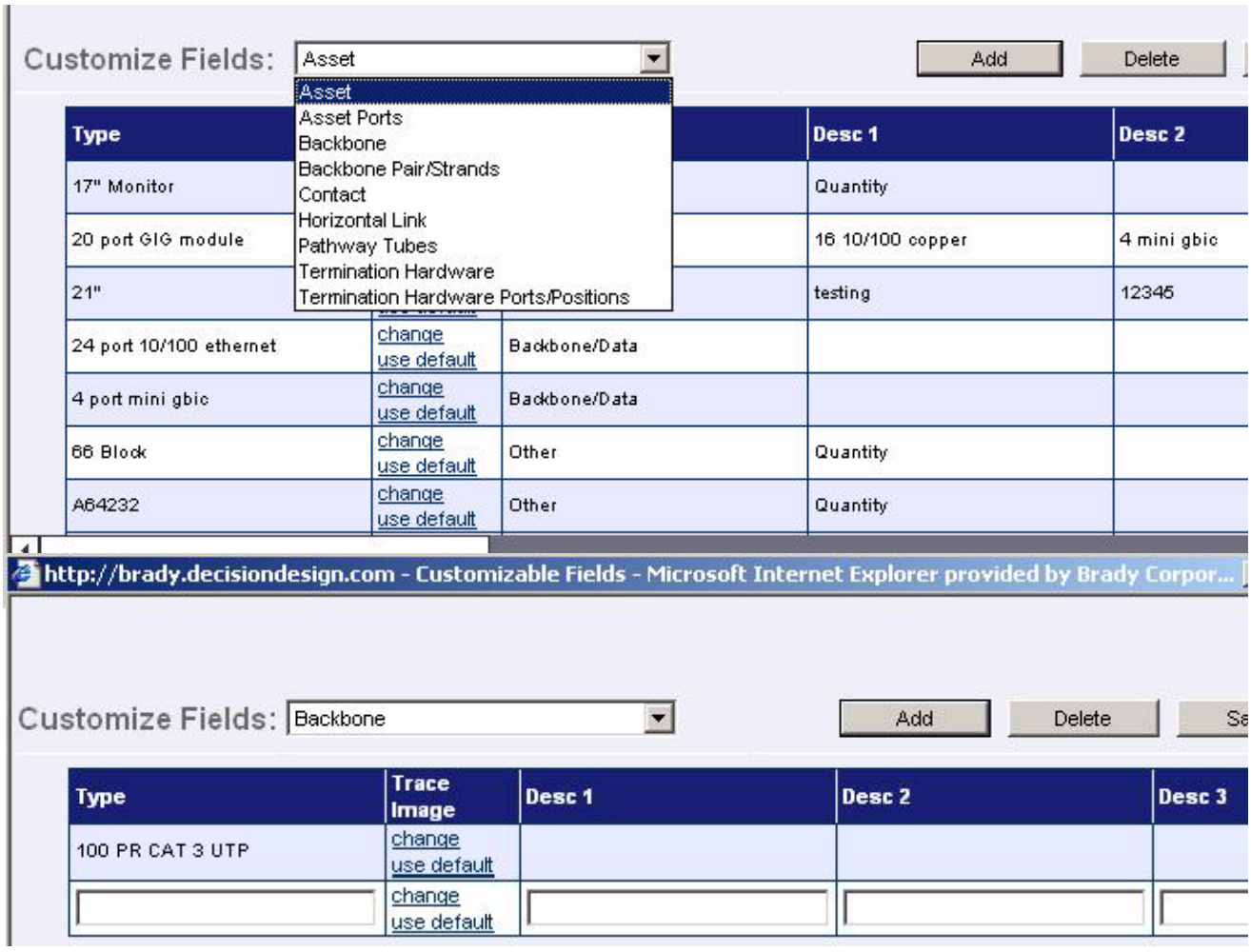
1. On the *Main Page*, click **Launch Application**.
2. From the *List View* drop-down menu, choose **Backbone Cables**.
3. Click **View Test Data** button.
4. In the pop-up window, select the **Set Name** from the drop-down menu and select the name to be deleted.
5. Click the arrow link next to **Info**.
6. The *Info* portion of the screen will expand and a delete button will display. Click **Delete** to delete the specified set of imported test results.

User Defined Fields

Drop-down fields in the *Detail View* area of the screen are available throughout the application. Some of these fields appear with libraries of items already built in, others will appear blank. If a library of items is present and can be used, you may access it by making a selection. If the drop-down is blank, or does not contain needed information, you may add a user-defined field. User-defined fields can only be added from the *Detail* area.

To add user-defined fields:

1. In the *List View*, select the component type you want (e.g., Backbone Cables).
2. From the *Detail View* menu, click ... next to the **Type** category.
3. Click **Add**.
4. Enter a new **Type** in the row provided.
5. If desired, enter descriptions in the **Description** fields.
6. Click **Save.** The entry is added to the drop-down libraries and saved it for future use.



To delete user-defined fields:

1. In the *List View*, select the component type you want (e.g., Backbone Cables).
2. From the *Detail View* menu, click next to the **Type** category.
3. Click in the box for the item you want to delete.
4. Click **Delete**, then click **Save**. The user-defined field will be deleted from the list.

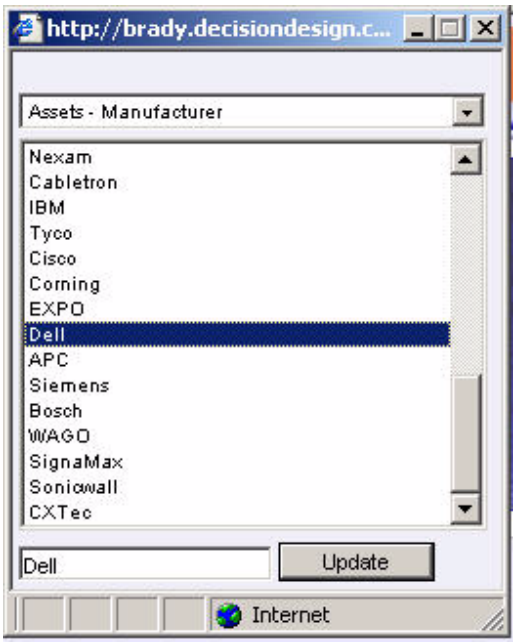
To edit user defined fields:

1. From the *Main Page*, click **User Defined Fields**.
2. In the *Field Editor* pop-up window, select an item from the drop-down list. All components for that field will appear in the box beneath the drop-down.
3. To change the spelling or completely change the properties, highlight an item in the list and type the corrected change in the dialog box.
4. Click **Update**. The item will be changed to the new data.

Note: In this section, you cannot add an item to the drop-down list. To add items, you must use the **Edit** button in the *Detail* area.

5. Click **X** to close the update dialog box.

Note: The *User Defined Fields* tool creates widespread change for a given field. *For example:* If your company uses all Dell computers and you change to Toshiba computers, you can use this tool to highlight **Dell,** type **Toshiba** in its place and click Update. This will make a global change from Dell to Toshiba. This feature applies to all drop-down fields, but only those items in use will appear in this tool (although more items may be visible in the Detail area when the drop-down category is selected).

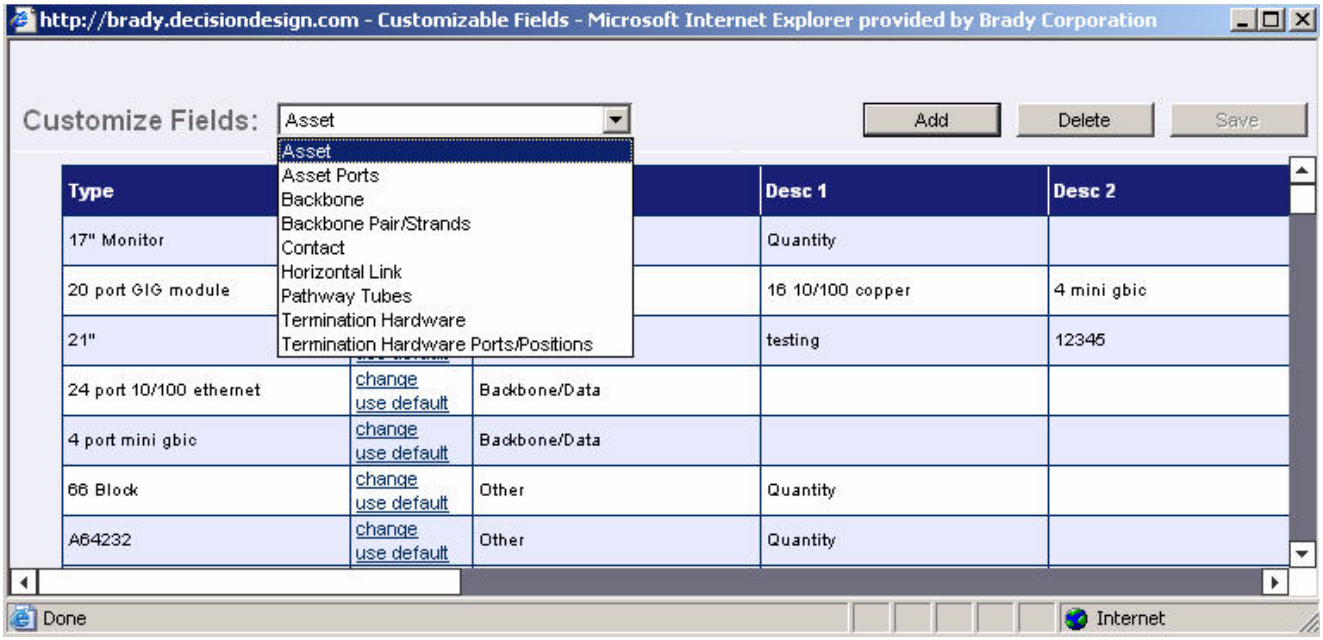


Custom Fields

NetDoc™ lets you define up to 10 additional fields for tracking and displaying data in the component tables. These additional fields can be customized for:

- Assets
- Asset Ports
- Backbone Cables
- Backbone Pairs/Strands
- Contacts
- Horizontal Links
- Termination Hardware
- Termination Hardware Ports/Positions

Example: You can create a new computer type and then define three customized labeled fields to track aspects of this computer type. Or, add a new phone type and define seven customizable fields to track specific data about that phone type.



Add Custom Fields

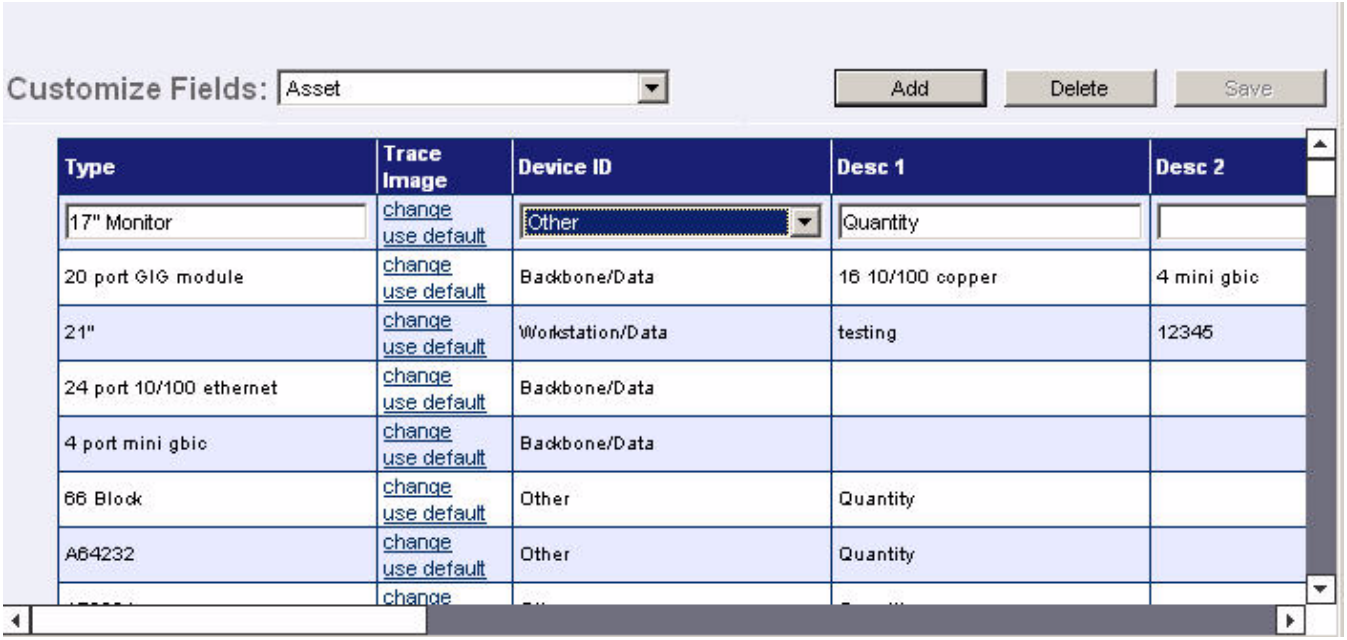
To add customized fields:

1. From the *Main Page*, click **Custom Fields**.

   - or -

   In the *Detail View* of the component category for which you want to add custom fields, click ... next to the *Type* field.
2. In the *Customize Fields* window, click **Add**. A new row is added to the table in the window.
3. Enter the information for the new field in the columns of that row.
4. In the **Description** fields, enter the desired field names.
5. Click **Save**.

Note: The new custom fields will appear either as additional fields displayed on the component *Detail View* or, depending on the component type, in the *List View* or *Detail View* the **Other** box is clicked.



Note: When the **Customize Fields** window is open, you can use the drop-down list at the top to switch to a different component type. You can add fields to a type (up to the ten-field limit), re-label a field, and add or remove types. Before adding a field, review the existing data in the **Customize Fields** window, to avoid unnecessary duplication.

Add Custom Images

You can create custom images for your components. Images used for the hardware components are *generic* and may not represent the specific component you want to display. For example, if you are documenting a patch panel, the default image may actually be a 110 block.

Note: Every item type can have its own customized image associated with it.

To change images:

1. From the *Main Page*, click **Custom Fields**.

   - or -

   In the *Detail View* of the component category for which you want to change images, click next to the *Type* field.
2. From the *Customize Fields* drop-down list, select the component category you want to change.
3. Choose the item you want, and click **change**
4. In the *Browse* window, navigate to the image you want to use, then click **OK**.
5. Click **Save**. The new image will be used when you hover over the component.
6. To revert back to the default image, click **use default**.

Security Log

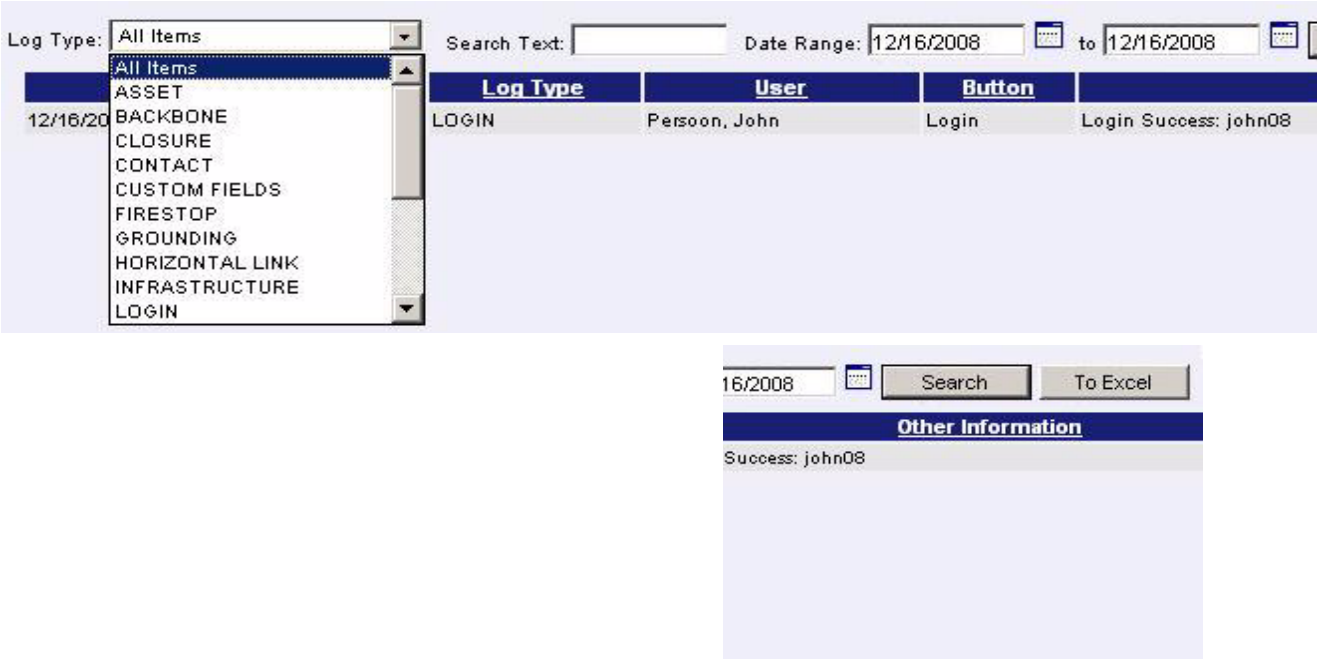
NetDoc™ tracks every transaction by every user who logs into the application. The application records the user name and date / time of the transaction. For each record, the **Revision Log**, in the *Notes and Attachments* information tab, lists the user who added the record, when it was added and the names of users who have modified it and when it was modified.

> **Note:** The user stamp only appears in the software if security is turned on and is used. If a the user stamp is not turned on, the Time/Date/User stamp will not be included entry.

For administrative purposes, this information is also provided, along with user names / dates of other transactions (e.g., logging in and off).

To view the Security Log:

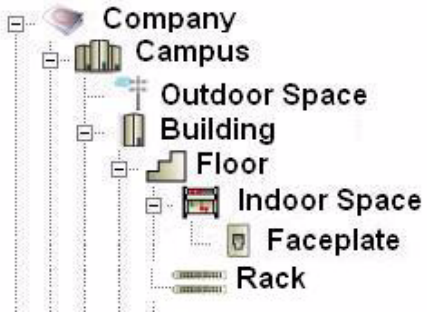
1. On the *Main Page*, click **Security Log**.
2. In the *Security Log* window, to:
   - **Change transaction type:** Click the **Log Type** drop-down list and select a different category.
   - **Search items in the table:** Enter a string in the *Search Text* field and click **Search**.
   - **Search for a specific date range:** Change the dates in either or both *Date Range* fields, then click **Search**.
   - **Export the data to Excel:** Click **To Excel**, click **Save** and browse to the location where you want the file saved. Then click **Save** again.
   - **Change the sort order:** Click the column head to sort from ascending to descending order. Click again to reverse the order.



SET UP MENU

You must set up the overall structure for your facility before you can begin adding the cabling infrastructure. The **Company** and **Infrastructure** set up wizards streamline the process of setting up or adding to your infrastructure, from the company level down to faceplates. The wizards are designed to quickly build geographical locations with the least amount of data entering. In most cases, you will build your company and infrastructure from the **Set Up** portion of the *Main Menu*. However, you can also access some of the Setup features from other areas of the application.

The “general” process includes creating an overall hierarchy as follows:



Note: Your infrastructure may vary from this example.

Companies

You can add or delete companies in the **NetDoc™** database by using the **Companies** link in the *Setup* menu. You must have a Company defined before you can add any other components.

Note: See *“Create a Company” on page 1-62* for detailed instructions and procedures on setting up companies.

Infrastructure

You can access the infrastructure wizard from the SETUP menu on the *Main Page*. When you set up any component of your infrastructure, the screen will display the buttons Add, Delete, and Wizard. You can add one component at time using Add, or you can add multiple components of the same type using Wizard.

Note: See *"Setting Up the Geographical Infrastructure" on page 1-61* for a detailed description and procedures on how to set up your company and infrastructure.

Recommendation: Use wizards carefully so your documentation is not inadvertently altered. It's a good idea to use the wizards to document in *small blocks* so you can verify that everything is created as intended. Since the wizards don't complete everything, creating small blocks of components lets you review the documentation quickly and complete any needed information.

WARNING
Although several items can be built within seconds, the application has no global delete capability. Deletions must be completed by deleting each specific item one by one.

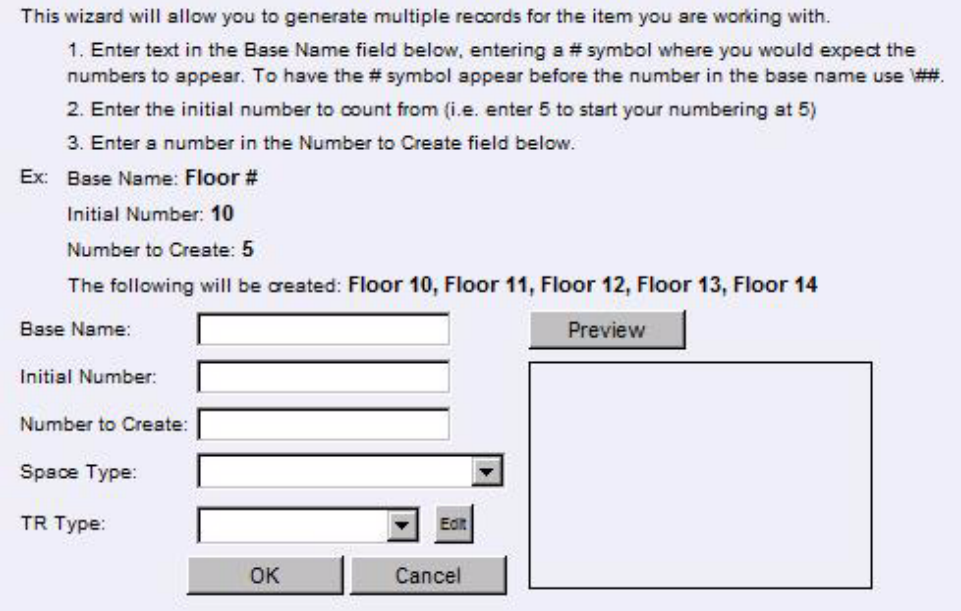
To use the Infrastructure Set up wizard:

1. From the *Main Page*, click **Infrastructure**.

   Note: You can also access the infrastructure Set up wizard from the Companies link.

2. In the *Navigation Tree*, click the item to which you want to add components (e.g., to add floors to a building, click on the *building*).
3. Click **Wizard**.
4. In the *Infrastructure Wizard* pop-up window, enter the appropriate information in the fields, then click **Preview**. The preview pane displays the list of items as they will appear in the **NetDoc™** records. You can change or re-enter the information in the fields and **Preview** the changes again.
5. When satisfied, click **OK**. The wizard window closes and the added components are listed in the table.

6. Review the items. They have not yet been added to the database and can be discarded if necessary:
   - **If correct:** Click **Save**. The *Navigation Tree* will be updated with the new infrastructure components.
   - **If incorrect:** Discard the additions by clicking in a different section of the *Navigation Tree*, then clicking **OK** on the dialog box that appears.


This wizard will allow you to generate multiple records for the item you are working with.
1. Enter text in the Base Name field below, entering a # symbol where you would expect the numbers to appear. To have the # symbol appear before the number in the base name use \##.
2. Enter the initial number to count from (i.e. enter 5 to start your numbering at 5)
3. Enter a number in the Number to Create field below.
Ex: Base Name: Floor #
Initial Number: 10
Number to Create: 5
The following will be created: Floor 10, Floor 11, Floor 12, Floor 13, Floor 14
Base Name:
Initial Number:
Number to Create:
Space Type:
TR Type:
Edit
Preview
OK
Cancel

NetDoc™ Set Up

Enable/Disable Features

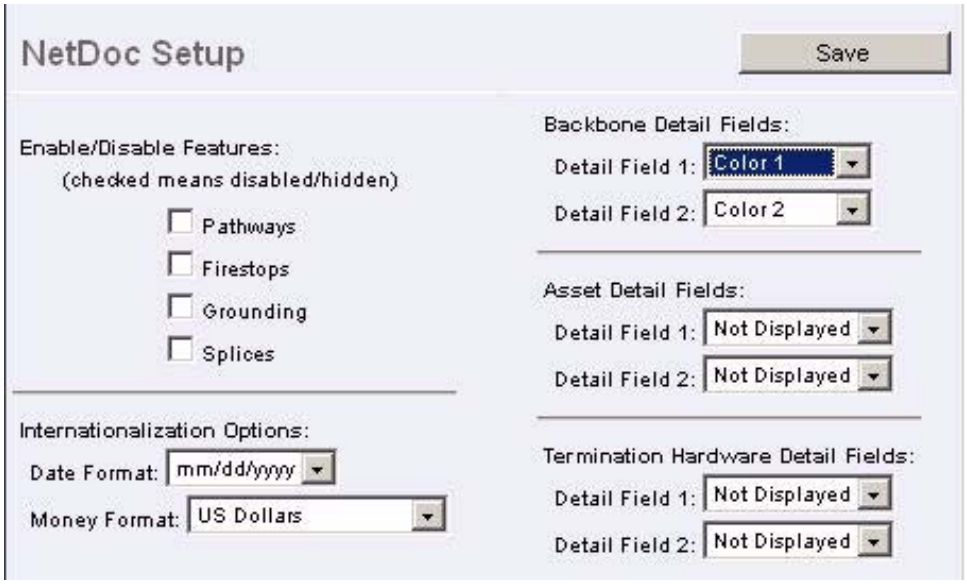
The Enable/Disable Features capability is accessed from the *Main Page* via the **NetDoc Setup** link in the SETUP section.

The four areas that can be hidden are important areas of your infrastructure and using **NetDoc™** to document these areas is recommended. However, hiding these areas and not using them is up to the user's discretion. Most importantly, these sections can be hidden and reinstated at any time depending on user preference.

To enable/disable features:

1. From the *Main Page*, click **NetDoc Setup**.
2. In the *NetDoc Setup* window, click the features you want to view or hide (enable/disable). Options are:
   - Pathways
   - Firestops
   - Grounding
   - Splices
3. Click **Save**.

Note: Once hidden, these areas will be hidden throughout the application. However, you can reinstate them by following the same procedure.



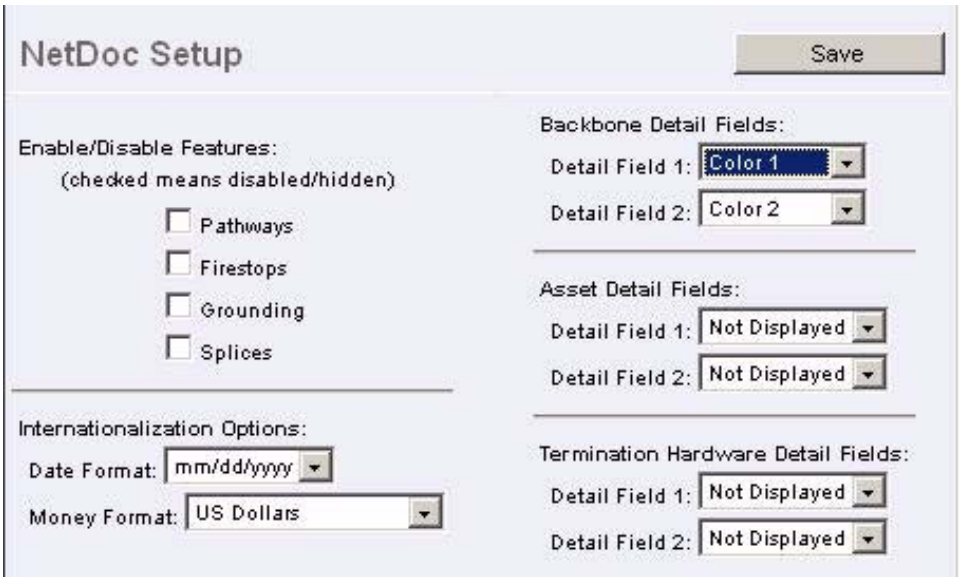
International Options

You can change the date and monetary format in **NetDoc™** through the SETUP menu. Once changed, these features are reflected throughout the application.

To change the date and monetary format:

1. From the *Main Page*, click **NetDoc Setup**.
2. In the *International Options* section, select the following:
   - **Date Format:** Choose *mm/dd/yyyy* or *dd/mm/yyyy*
   - **Money Format:** Choose *US Dollars*, *Euro*, or *Great Britain Pounds*
3. Click **Save**.

Note: Once changed, these features will be reflected throughout the application. However, you can reinstate them by following the same procedure.



Backbone Detail Fields

You can change the fields that will display in the Backbone Cables Detail view.

To change backbone detail fields:

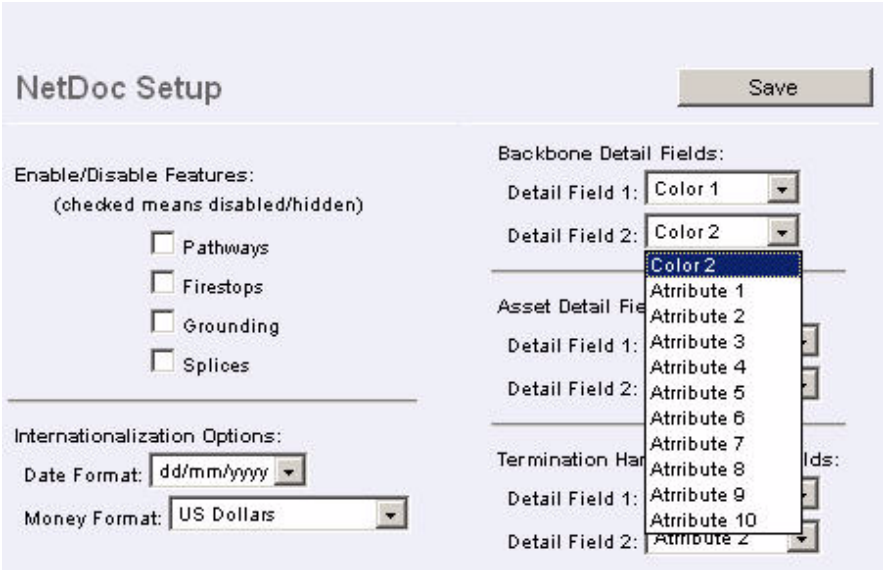
1. From the *Main Page*, click **NetDoc Setup**.
2. In the *Backbone Detail Fields* section, select the following:

Note: Once detail fields are selected and displayed in the grid, they no longer appear in the pop-up window.

- **Detail Field 1:** Choose *any attribute* from the drop-down list.
- **Detail Field 2:** Choose *any attribute* from the drop-down list.

3. Click **Save**.

Note: Once changed, these features will be reflected throughout the application. However, you can reinstate them by following the same procedure.



Asset Details Fields

To change Asset detail fields:

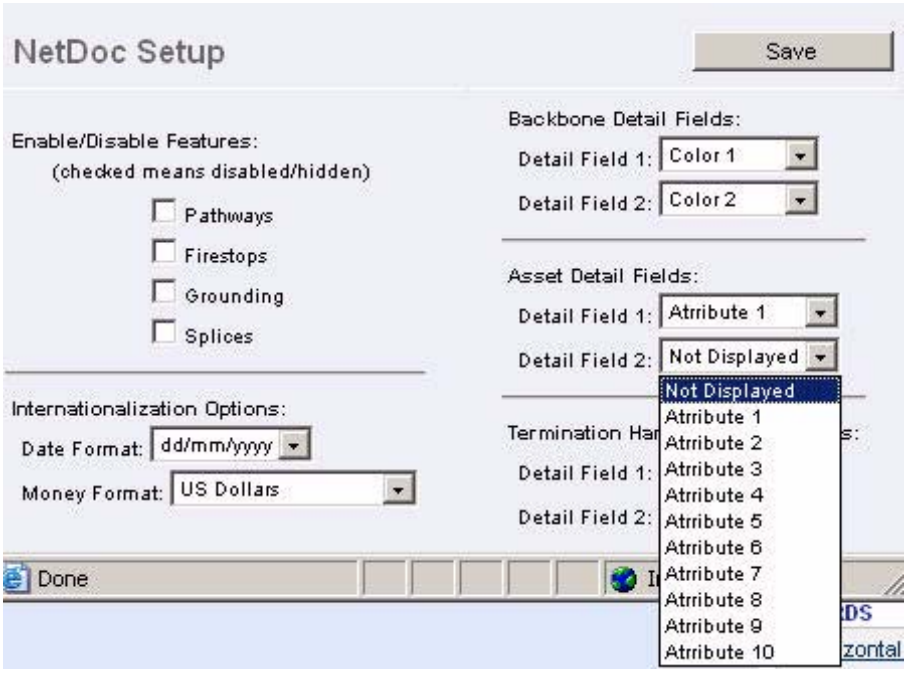
1. From the *Main Page*, click **NetDoc Setup**.
2. In the *Asset Detail Fields* section, select the following:

Note: Once detail fields are selected and display in the grid, they no longer appear in the pop-up window.

- **Detail Field 1:** Choose *any attribute* from the drop-down list.
- **Detail Field 2:** Choose *any attribute* from the drop-down list.

3. Click **Save**.

Note: Once changed, these features will be reflected throughout the application. However, you can reinstate them by following the same procedure.



Termination Hardware Detail Fields

To change Termination Hardware detail fields:

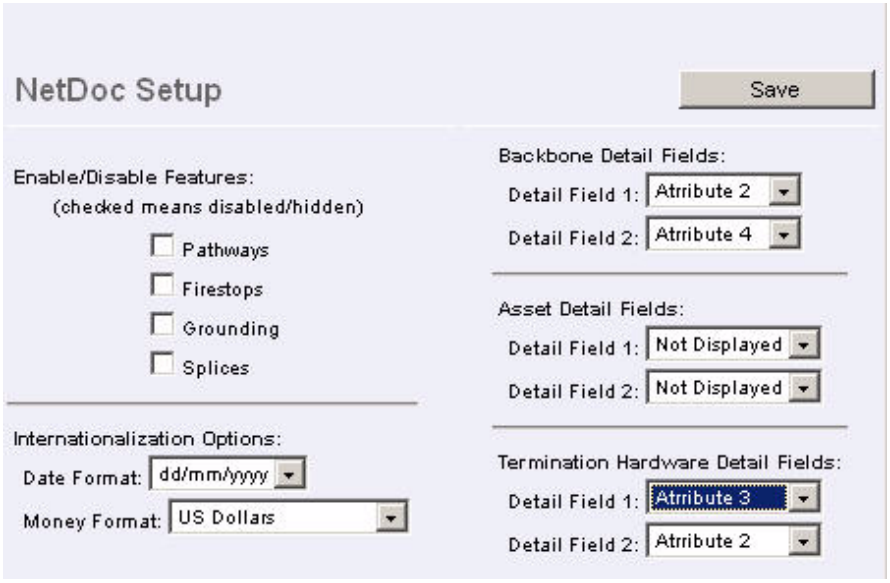
1. From the *Main Page*, click **NetDoc Setup**.
2. In the *Termination Hardware Detail Fields* section, select the following:

Note: Once detail fields are selected and display in the grid, they no longer appear in the pop-up window.

- **Detail Field 1:** Choose *any attribute* from the drop-down list.
- **Detail Field 2:** Choose *any attribute* from the drop-down list.

3. Click **Save**.

Note: Once changed, these features will be reflected throughout the application. However, you can reinstate them by following the same procedure.



WIZARDS MENU

NetDoc™ offers a number of wizards that speed up the process of setting up and documenting your infrastructure. Wizards minimize the data entry needed to add multiple network components at the same time. Each wizard can be used to build several identifiers in the same location, so you can create default information that remains the same for all components being built at that time.

> **Note:** You can also access some Wizards from various locations in the application (e.g., Infrastructure link, port screens, etc.).

Wizards let you quickly set up multiple records for the component type, using as simple or as complex a naming or numbering scheme as you want.

Example: *You can set up a numbering sequence as simple as 1-1, 1-2, or A-1, A-2, etc. At the other extreme, you can set up a numbering sequence with up to 10 numbers or characters, separated by spaces or special characters such as:* ***EM-1A_123/A-1 C-a\1 1*** *with the last in the series as:* ***EM-5C_333/J-9 E-p\9.***

Recommendation: Use wizards carefully so your documentation is not inadvertently altered. It's a good idea to use the wizards to document in *small blocks* so you can verify that everything is being created as intended. Since the wizards don't complete everything, creating small blocks of components let you review the documentation quickly and complete the needed information.

WARNING

Although several items can be built within seconds, the application has no global delete capability. Deletions must be performed by deleting each specific item one by one.

All wizards include both a View Sample feature that shows a general example of how the tool can be used by populating the identifier area for you, and a Preview button that lets you view your labeling scheme and all of the items before you save them in the database.

The naming/numbering features in all wizards function basically the same. Other information entered into the wizard is specific to the particular component type.

> **Note:** Wizards can also be accessed from the Infrastructure area. The information entered from the Infrastructure area is unique to the area from which it was launched.

From the **NetDoc™** *Main Page*, you can directly access wizards in these sections (see *"Setting Up the Geographical Infrastructure" on page 1-61* for specific detail about setting up and using these wizards):

- WIZARDS
- Horizontal Link AutoNumbering Wizard
- Asset AutoNumbering Wizard
- Backbone AutoNumbering Wizard
- Termination Hardware AutoNumbering Wizard

You can also access some wizards from tabs in the Detail Section when you are setting up the Infrastructure and a **Port Naming Wizard** from either the *Ports* tab of the **Assets** screen or the *Port Positions* tab of the **Termination Hardware** screen. The Port Naming wizard lets you generate or rename all ports on a given asset/hardware piece, although you can still rename any port individually.

Note: The Port Naming Wizard operates basically the same as the other wizards, except that it has fewer naming/numbering components.

To use an infrastructure setup wizard:

Note: When you set up any component of your infrastructure, **NetDoc™** displays the buttons **Add**, **Delete**, and **Wizard**. You can add a single component using **Add**, or you can add multiple components of that type using **Wizard**.

1. Depending on what you are documenting, from the *Main Page*, click the link for either **Companies** or **Infrastructure**.
2. **Companies Setup Wizard**: Click the **Wizard** button on the pop-up window that appears.

   - or -

   Other Infrastructure Wizard: In the Navigator Tree, click the area to which you want to add components. (e.g., to add floors to a building, click on the building).
3. In the *Infrastructure Wizard* pop-up window, follow the instructions on how to add the components.
4. Enter the appropriate information in the fields, and then click **Preview**. The preview pane displays the list of items as they will appear in the **NetDoc™** records. You can change or re-enter the information in the fields and the **Preview** changes.
5. When done, click **OK**. The wizard window closes and the components will be listed in the List Table.
6. Review the items in the table. They have not yet been added to the database and can be discarded if necessary:
   a. If the information is correct, click **Save**. The Navigator Tree will be updated with the infrastructure components you created.
   b. If there is an error, you can discard the additions by clicking in a different section of the Navigator Tree and then clicking **OK** when the dialog box displays.

Setting Up the Geographical Infrastructure

Once you are familiar with the **NetDoc™** environment, you can begin setting up your geographical infrastructure. The infrastructure holds the main components of the location you are documenting, including: *Company*, *Campus*, *Buildings*, *Outdoor Spaces*, *Floors*, *Indoor Work and Telecommunications Spaces*, *Racks, TDUs* and *Faceplates*. Once the geographical infrastructure is set up, you can set up the cabling infrastructure (see *"Setting Up the Cabling Infrastructure" on page 1-78*).

The entire geographical infrastructure does not need to be set up all at once. You can begin by defining certain locations and then document those areas, while later adding to your geographical infrastructure as a growing task. **NetDoc™** only requires that you have the infrastructure built to the level to which you want to associate network components.

Recommendation: You can speed the process by adding more than one item using a Wizard, or at any component screen, you can add single items by clicking **Add**. See *"WIZARDS MENU" on page 1-59* for details about using wizards.

> **Note:** You are not required to set up your entire geographical infrastructure, however, you **must** create the basics of one before you can set up any cabling infrastructure. See Appendix D for a suggested example of how to setup your company infrastructure.

IMPORTANT! When adding components to your infrastructure, you must be positioned on the Navigation Tree at the level **above** the position where the component will be added. For example, to add a Campus, you must be at the company level, to add a Building, you must be at the Campus level or to add a Floor, you must be at the Building level.

To Add:	Must be at Tree Level:
Campus	Company
Outdoor Space	Campus
Building	Campus
Floor	Building
Indoor Space (includes Work Areas, Telecommunication Spaces, Racks and TDUs)	Floor
Faceplate	Indoor Space
Rack	Floor

Create a Company

The company is the highest-level component in **NetDoc™** and is the starting point for managing your geographical infrastructure. Even if you only manage the infrastructure for a single company, you still need to define the company before setting up cabling infrastructure. Buildings are the highest level in the Navigation Tree.

Note: The first time you enter **NetDoc™**, the **Company Info** window is automatically displayed. The company names will appear in the Navigation Tree next to a company icon.

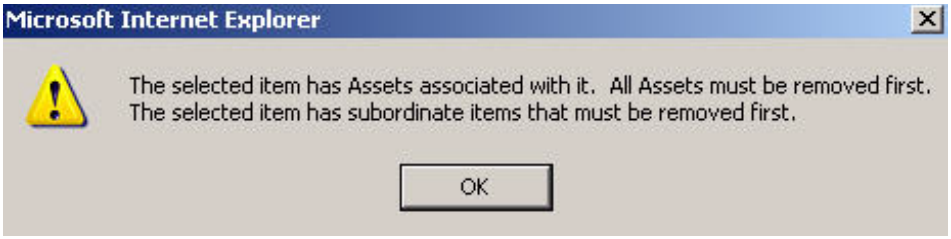
To add a company:

1. From the *Main Page*, click **Companies**.
2. In the *Company Info* window, click **Add**.
3. Enter the appropriate information in the following fields:
   - **Company:** Enter the name of the company you want added.
   - **Address:** Enter the street address.
   - **City, State, & Zip:** Enter the city, state and zip code.
   - **Phone:** Enter the telephone number for the company you are adding.
4. When finished, click **Save**. The company will be added to the list of companies on the network.

To delete a company:

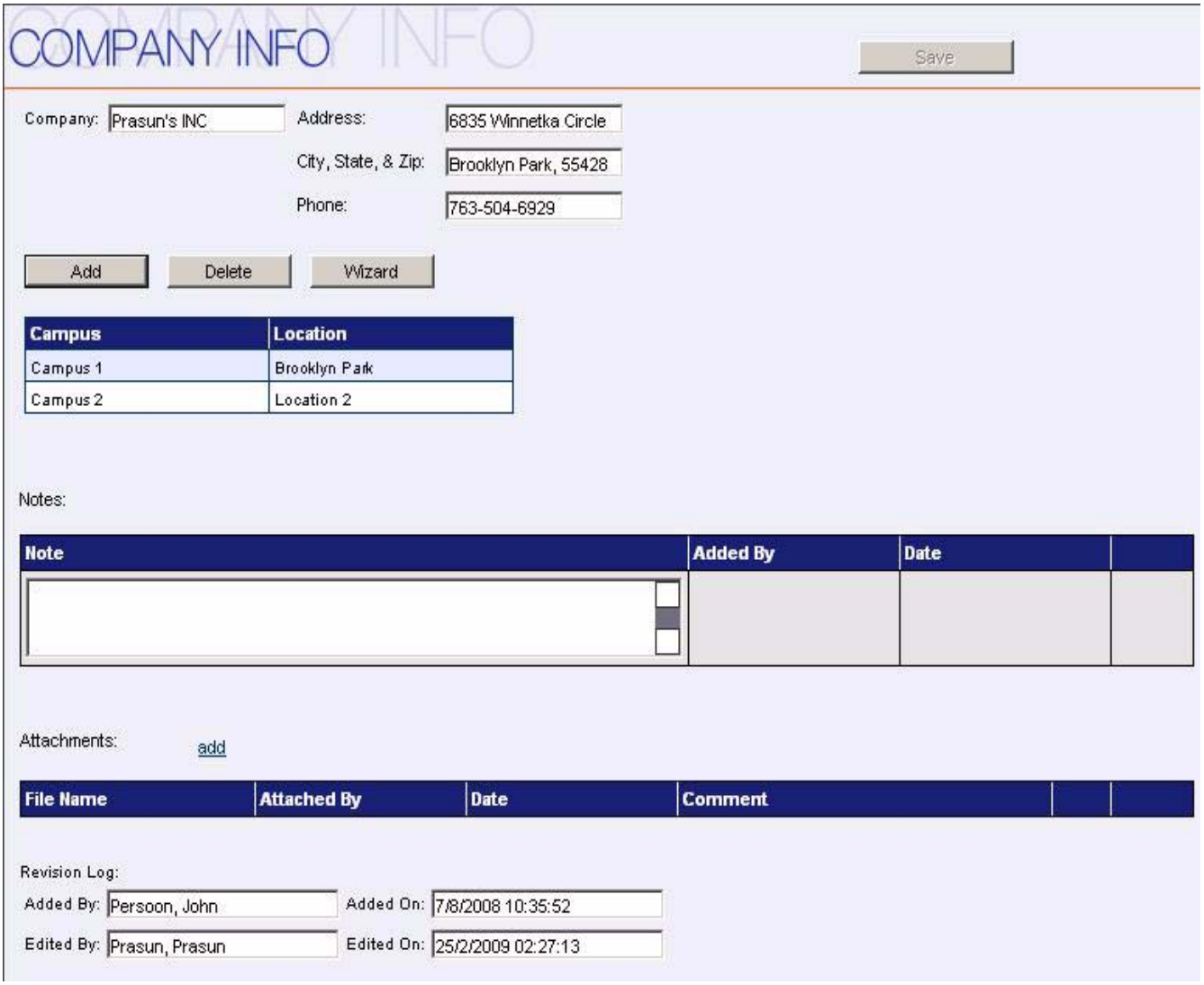
1. From the *Main Page*, click **Companies**.
2. In the Company Info window, click on the company you want to delete.
3. If the company has no subordinate items, click **Delete**
4. Click **Save** to exit the window.

Note: If you try to remove a company that has subordinate items, a warning box displays. You cannot delete a company until all of its subordinate items are removed.


Microsoft Internet Explorer
The selected item has Assets associated with it. All Assets must be removed first.
The selected item has subordinate items that must be removed first.
OK

Create a Campus

Your company may have only one location, in which case, you need only create a single campus. However, many companies conduct business at a several locations. The campus feature in **NetDoc™** makes it possible to manage infrastructure specific to each location. A campus is added at the **Company** level of the Navigation Tree.



To add a Campus:

1. From the *Main Page*, click **Infrastructure**.
2. From the *Navigation Tree*, select the company where the campus will reside.
3. In the *Company Info* window, click **Add** and enter the name and location of the campus.
4. Repeat Step 3 for each additional campus within your company.
5. In the *Notes* section, add a note for this company, if desired.
6. To insert an attachment:
   a. In the Attachments area, click **add** and browse to the location of your attachment, then click **Open**.
   b. If desired, enter a note for the attachment.
   c. Click **OK**.
7. When finished, click **Save**. The new campus entries will display under the company.

Note: The Navigation Tree, will show a plus sign next to the icon indicating there is infrastructure information at the next level down. Click plus **(+)** to expand and view that information.

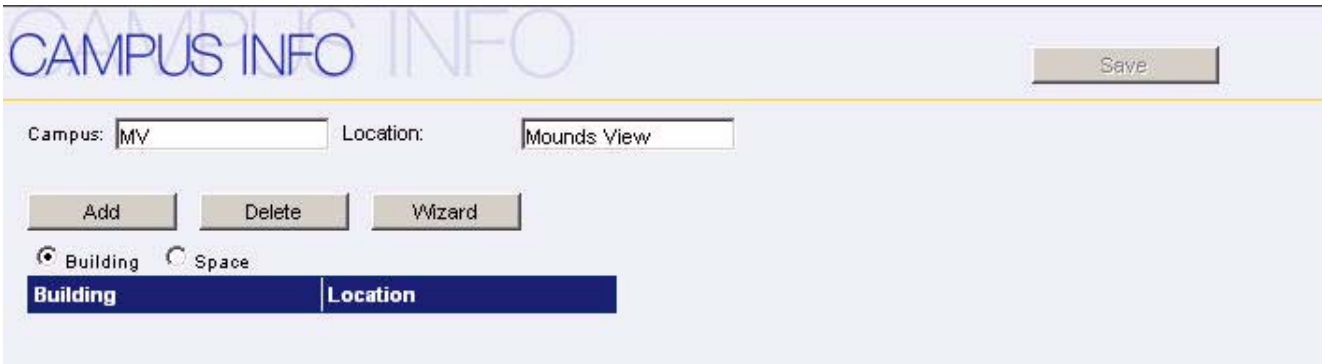
To remove a Campus:

1. In the *Navigation Tree*, highlight the company you want to remove. The Company Info screen displays.
2. In the Company Info screen, click **Delete**.

Note: If the campus has no subordinate items, such as buildings, you can remove the campus. If you try to remove the campus while items exist underneath it, a warning box displays: "The campus cannot be deleted until subordinate items are removed."

3. Click **Save** to complete the deletion. The campus will be removed from the Navigation Tree.

Note: Although you add and remove a Campus through the Company Info screen, the *Attachments* and *Notes* sections apply only to the Company.



Set up a Building

Each campus you set up must contain at least one building. The building will contain the spaces that house the components of your infrastructure. Your company may have one building, or multiple buildings that can be interconnected by cabling components. Buildings are added at the **Campus** level of the Navigation Tree.

To add a building:

1. On the *Main Page*, select **Infrastructure**.
2. Highlight the *Campus* where you want to add buildings. The *Campus Info* window displays with the Campus and Location displayed in the Attributes section.
3. Click the radio button for **Building**.
4. Click **Add**.
5. Enter the **Name** and **Location** of the building.
6. Repeat Steps 4 and 5 for each additional Building.
7. In the *Notes* section, add a note for this company, if desired.
8. To insert an attachment:
   a. In the Attachments area, click **add** and browse to the location of your attachment, then click **Open**.
   b. If desired, enter a note for the attachment.
   c. Click **OK**.
9. When finished, click **Save**.
10. When finished, click **Save**. The new building entries will display under the campus.

Note: The Navigation Tree, will show a plus sign next to the icon indicating there is infrastructure information at the next level down. Click plus **(+)** to expand and view that information.

To remove a building:

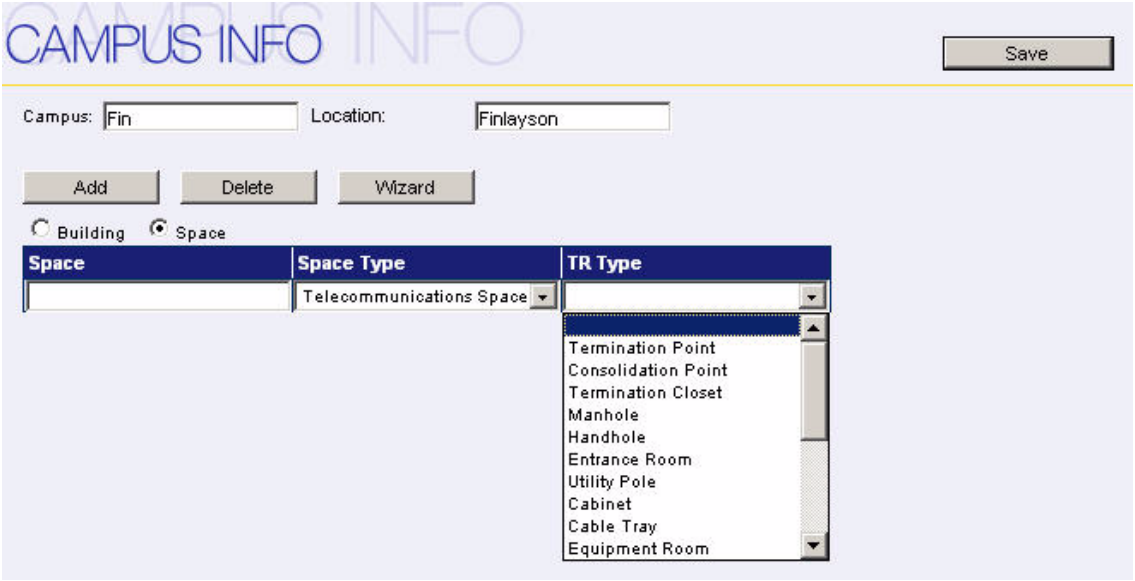
1. On the *Main Page*, select **Infrastructure**.
2. Highlight the *Building* you want to delete and click **Delete**.

   Note: If there are floors associated with the building, a warning box displays: "The space cannot be deleted until subordinate items are removed first."

3. Click **Save** to complete the deletion. The building will be removed from the Navigation Tree.

Set Up an Outdoor Space

Your campus may contain outdoor spaces that house components of the geographical infrastructure. In **NetDoc™** you can designate an outdoor space as a manhole or utility pole. Outdoor spaces are added at the **Campus** level in the Navigation Tree.



To add an outdoor space:

1. On the *Main Page*, select **Infrastructure**.
2. Highlight the *Campus* where you want to add outdoor spaces. The *Campus Info* window displays with the Campus and Location displayed in the Attributes section.
3. Click the radio button for **Space**, then click **Add**.
4. Enter the **Name** of the space and choose a **Space Type** and **TR Type**.
5. Repeat Steps 4 and 5 for each additional Outdoor Space.
6. In the *Notes* section, add a note for this company, if desired.
7. To insert an attachment:
   a. In the *Attachments* area, click **add** and browse to the location of your attachment, then click **Open**.
   b. If desired, enter a note for the attachment.
   c. Click **OK**.
8. When finished, click **Save**. The new outdoor spaces will display under the campus.

Note: The Navigation Tree, will show a plus sign next to the icon indicating there is infrastructure information at the next level down. Click plus **(+)** to expand and view that information.

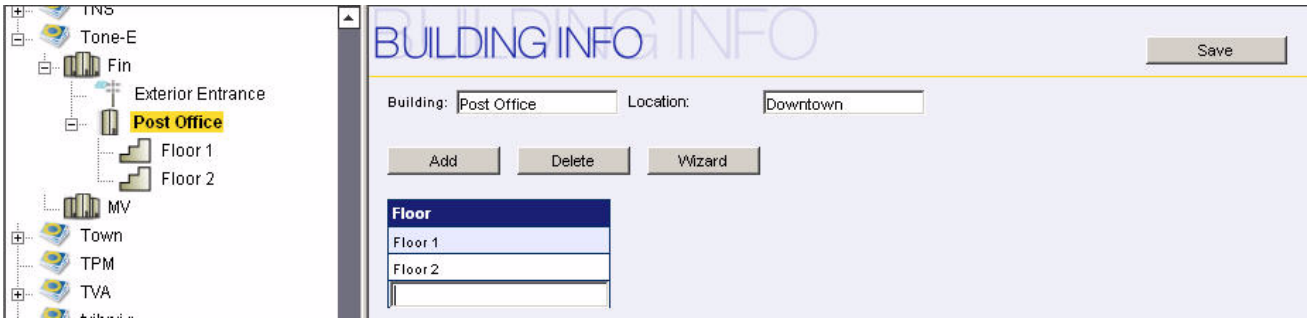
To remove an outdoor space:

1. On the *Main Page*, select **Infrastructure**.
2. Highlight the *Campus* with the space you want to delete.
3. Click **Space**.
4. Choose the *Space* you want to remove and click **Delete**.
5. Click **Save** to complete the deletion. The outdoor space will be removed from the Navigation Tree.

Set Up Floors

Floors may contain communication spaces, conference rooms, telecommunications spaces, offices, cubicles, hallways, storage, etc., that house cabling elements and hardware. Floors are added at the **Building** level in the Navigation Tree.

Note: To add a Rack to a floor, see *"Racks" on page 1-75*.



To add a floor:

1. On the *Main Page*, select **Infrastructure**.
2. In the *Navigation Tree*, highlight the building name where you want to add floors. The *Building Info* window displays with the Building and Location displayed in the Attributes section.
3. To add a floor in the building, click **Add**.
4. Type a **Name** for the floor. If you have more than nine (9) floors in your building, number the floors 01, 02, etc., so that they will sort in order on the Navigation Tree.
5. When finished, click **Save**. To exit without saving your changes, click another level in the Navigation Tree and click **OK** when notified that your changes will be lost.

Note: The Navigation Tree, will show a plus sign next to the icon indicating there is infrastructure information at the next level down. Click plus **(+)** to expand and view that information.

To remove a floor:

1. On the *Main Page*, select **Infrastructure**.
2. Highlight the building name where the floor is located.
3. Click the floor you want to remove and click **Delete**.

Note: If there are cubicles or other spaces associated with the floor, a warning box displays: "The selected Floor has one or more Spaces associated with it. It cannot be deleted until all subordinate items are removed."

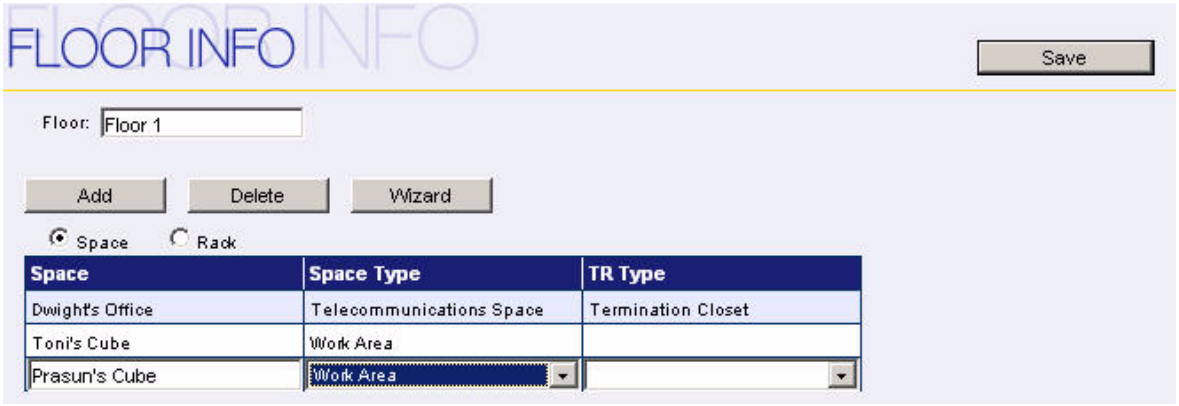
4. Click **Save** to complete the deletion. The floor will be removed from the Navigation Tree.

Set Up Indoor Spaces

NetDoc™ categorizes all building (indoor) floor space as either a Work Area or a Telecommunication Space. A Work Area houses users and workstation assets. A Telecommunication Space is where termination hardware or backbone assets reside. Indoor Spaces are added at the **Floor** level in the Navigation Tree.

Work Areas

Workspaces are indoor spaces, such as offices or cubicles, that are typically occupied by individuals and do not contain telecommunication hardware. To add Faceplates and Faceplate Ports, see *"Faceplates" on page 1-78*. Work areas are added at the **Floor** level in the Navigation Tree.



To set up a work area:

1. On the *Main Page*, select **Infrastructure**.
2. Locate the *Floor* where you want to add the work area. The *Floor Info* window displays with the Floor Name in the Attributes section.
3. Click the radio button for **Space.**
4. Click **Add**.
5. Enter the **Name** of the space and choose a **Space Type**.
6. In the *Notes* section, add a note for this company, if desired.
7. To insert an attachment:
   a. In the *Attachments* area, click **add** and browse to the location of your attachment, then click **Open**.
   b. If desired, enter a note for the attachment.
   c. Click **OK**.
8. When finished, click **Save**. The new work area will display under the floor.

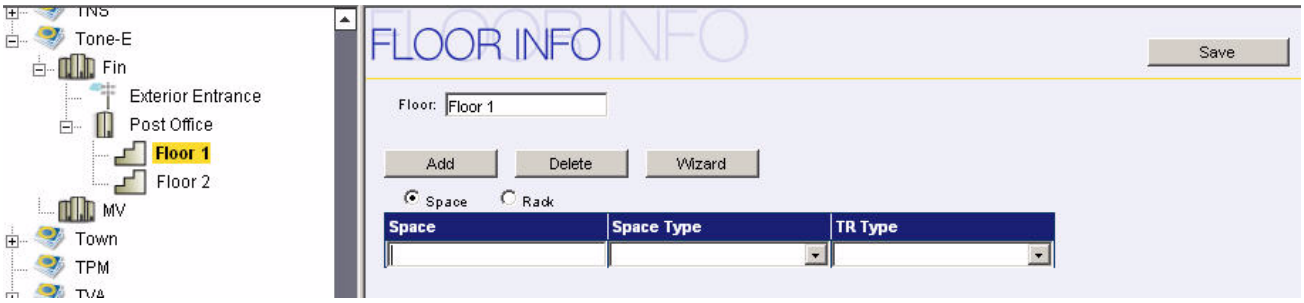
Note: The Navigation Tree, will show a plus sign next to the icon indicating there is infrastructure information at the next level down. Click plus **(+)** to expand and view that information.

To remove a work area:

1. On the *Main Page*, select **Infrastructure**.
2. Highlight the *Floor* with the space you want to delete.
3. Click **Space**.
4. Choose the *Space* you want to remove and click **Delete**.
5. Click **Save** to complete the deletion. The work area will be removed from the Navigation Tree.

Telecommunication Spaces

A telecommunication space is an indoor space that typically houses hardware such as termination rooms, closets, hubs, routers, racks, cabinets, and switches. Telecommunication Spaces are added at the **Floor** level in the Navigation Tree.



To add a telecommunication space:

1. On the *Main Page*, select **Infrastructure**.
2. Locate the *Floor* where you want to add an indoor space. The *Floor Info* window displays with the Floor Name in the *Attributes* section.
3. Click the radio button for **Space.**
4. Click **Add**.
5. Enter the **Name** of the space and choose a **Space Type** and **TR Type** from the drop-down lists.

Note: *Space Type* and *TR* (termination room) *Type* are only available when using the wizard to create spaces. Other types do not use these fields.

6. In the *Notes* section, add a note for this company, if desired.
7. To insert an attachment:
   a. In the *Attachments* area, click **add** and browse to the location of your attachment, then click **Open**.
   b. If desired, enter a note for the attachment.
   c. Click **OK**.
8. When finished, click **Save**. The new indoor spaces will display under the floor.

Note: The Navigation Tree, will show a plus sign next to the icon indicating there is infrastructure information at the next level down. Click plus **(+)** to expand and view that information.

To remove a telecommunication space:

1. On the *Main Page*, select **Infrastructure**.
2. Highlight the *Floor* with the space you want to delete.
3. Click **Space**.
4. Choose the *Space* you want to remove and click **Delete**.

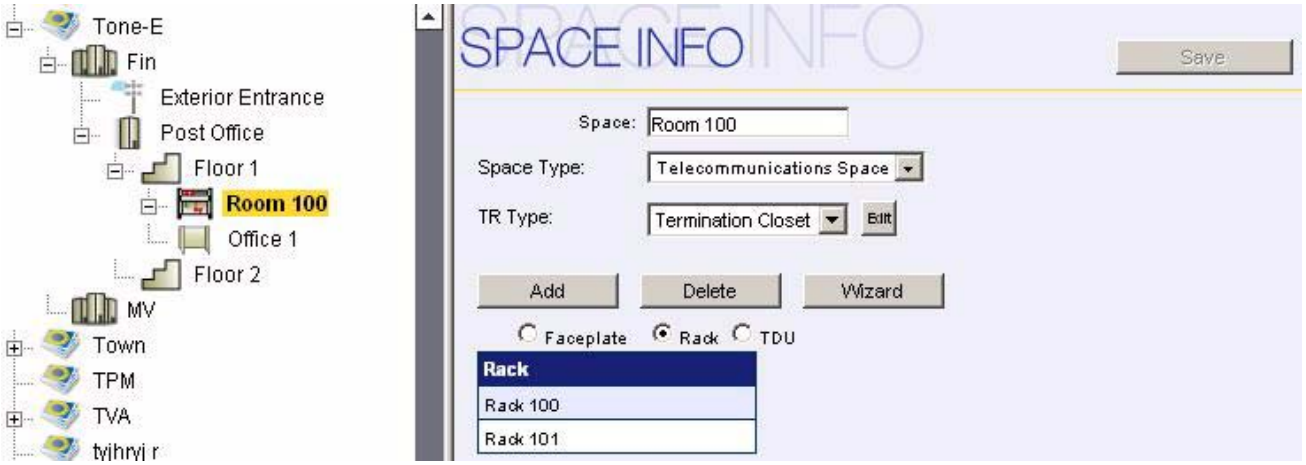
Note: If there is termination hardware associated with the floor, a warning box displays: "The selected termination room has termination hardware associated with it. It cannot be deleted until all subordinate items are removed."

5. Click **Save** to complete the deletion. The telecommunication space will be removed from the Navigation Tree.

Racks

Racks are physical spaces that can contain multiple servers, patch panels and other equipment stacked in a vertical orientation in order to consolidate network equipment and minimize floor space needs. Racks are added at the **Floor (or space)** level in the Navigation Tree.

> **Note:** Racks are visible on the Navigation Tree. You can only add Racks to Floors or Spaces.



To add a rack:

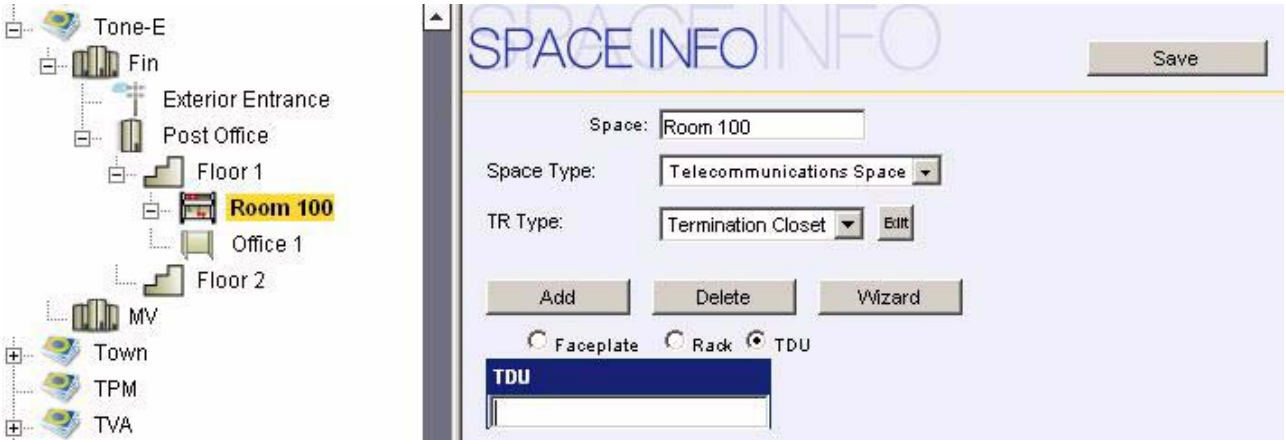
1. On the *Main Page*, select **Infrastructure**.
2. Locate the *Floor* or *Space* where you want to add a rack. The *Floor* or *Space Info* window displays with the Floor or Space Name, Space Type and TR Type in the Attributes section.
3. Click the radio button for **Rack.**
4. Click **Add**.
5. Enter the **Name** of the rack.
6. In the *Notes* section, add a note for this company, if desired.
7. To insert an attachment:
   a. In the *Attachments* area, click **add** and browse to the location of your attachment, then click **Open**.
   b. If desired, enter a note for the attachment.
   c. Click **OK**.
8. When finished, click **Save**. The new rack information is added to the ***Floor*** or *Space* detail.

To remove a rack:

1. On the *Main Page*, select **Infrastructure**.
2. Highlight the *Floor* or *Space* with the rack you want to delete.
3. Click **Rack**.
4. Choose the *Rack* you want to remove and click **Delete**.
5. Click **Save** to complete the deletion. The rack will be removed from the Floor or Space.

TDU

Tube Distribution Unit (TDU) is a modular, rack-mounted patch panel enclosure generally used for air-blow fiber optic cables. A TDU can only be added at the **Floor** or **Space** level.



To add a TDU:

1. On the *Main Page*, select **Infrastructure**.
2. Locate the *Space* where you want to add a TDU. The Space Name, Space Type and TR Type display in the *Attributes* section.
3. Click the radio button for **TDU.**
4. Click **Add**.
5. Enter the **Name** of the TDU.
6. In the *Notes* section, add a note for this company, if desired.
7. To insert an attachment:
   a. In the *Attachments* area, click **add** and browse to the location of your attachment, then click **Open**.
   b. If desired, enter a note for the attachment.
   c. Click **OK**.
8. When finished, click **Save**. The new rack information is added to the ***Floor*** or *Space* detail.

Note: TDUs are not visible on the Navigation Tree. TDUs can only be viewed by clicking the TDU radio button from within the Space where the rack resides. When a TDU is added, the Navigation Tree indicates a (-) next to the icon for the Space.

To remove a TDU:

1. On the *Main Page*, select **Infrastructure**.
2. Highlight the *Space* with the TDU you want to delete.
3. Click **TDU**.
4. Choose the *TDU* you want to remove and click **Delete**.
5. Click **Save** to complete the deletion. The TDU will be removed from the Space.

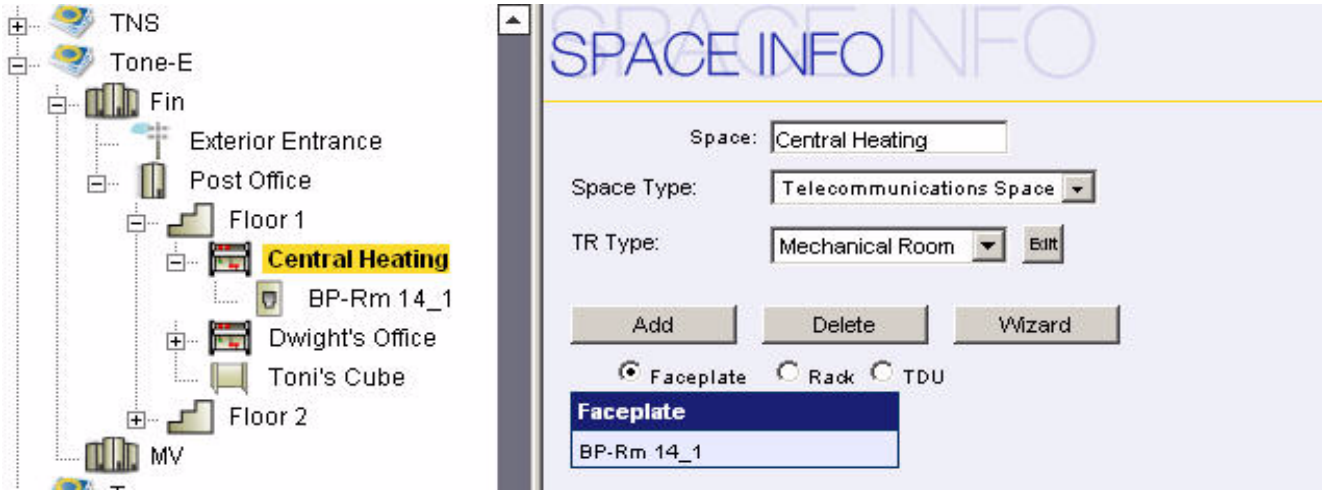
Setting Up the Cabling Infrastructure

After setting up your geographical infrastructure, the next step is to set up the cabling. Although many elements of cabling infrastructure can be added at any time after the geographical infrastructure is set up, faceplates and termination hardware should be set up first. Faceplates are usually attached to a Work Area while Termination Hardware is usually located in a Telecommunication Space.

Faceplates

Any indoor or outdoor space may have a faceplate set up in **NetDoc™**. Faceplates are added at the **Floor (or space)** level in the Navigation Tree.

Note: Faceplates can also be set up when you are adding a Work Area.



To add a Faceplate:

1. On the *Main Page*, select **Infrastructure**.
2. In the Navigation Tree, click to highlight the name of the space where you want to add a faceplate. The *Space Info* screen appears with the space name.
3. In the Space Info window, click **Add** and type the faceplate name or ID.
4. In the *Notes* section, add a note for this company, if desired.
5. To insert an attachment:
   a. In the *Attachments* area, click **add** and browse to the location of your attachment, then click **Open**.
   b. If desired, enter a note for the attachment, then click **OK**.
6. Click **Save**. The new faceplate will be added to the Navigation Tree.

To remove a Faceplate:

1. On the *Main Page*, select **Infrastructure**.
2. Click to highlight the name of the space where you want to delete a faceplate.
3. In the *Space Info* screen, click on the faceplate you want to delete, then click **Delete**.

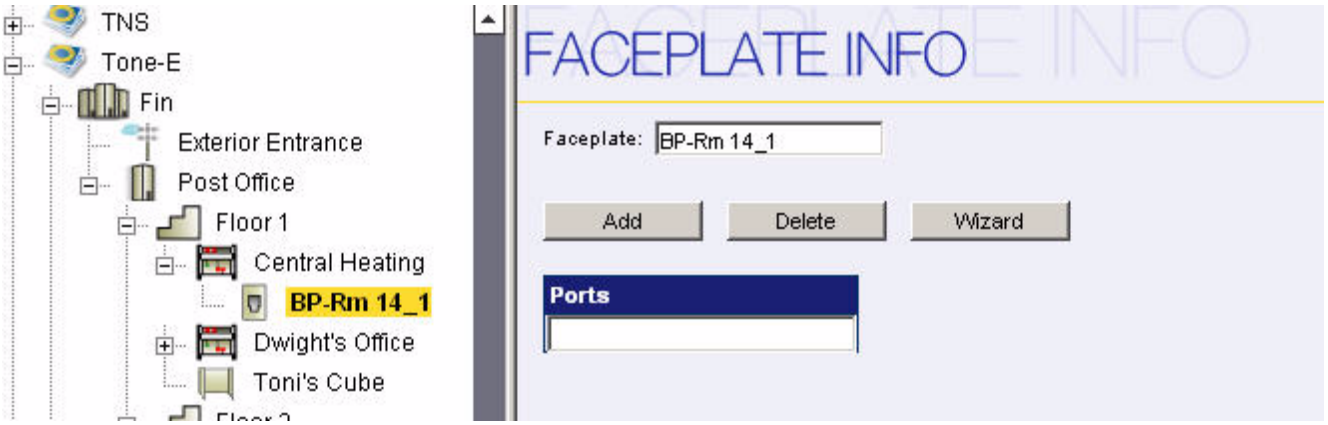
Note: If there is anything connected to the faceplate, warning box pops up: “The space cannot be deleted until subordinate items are removed first.”

4. Click **Save**. The faceplate name will be removed from the Navigation Tree.

Example: **NetDoc™** *can track several types of faceplates beyond the normal two- or four-port faceplates. For example, a Multi-User Termination Outlet Assembly (MUTOA) is a faceplate or biscuit that contains several horizontal links and feeds more than one work station or user. From the faceplate, you may add as many horizontal links as you want.*

Faceplate Ports

Each faceplate can have one or more ports associated with it.



To add a faceplate port:

1. On the *Main Page*, select **Infrastructure**.
2. In the Navigation Tree, click to highlight the name of the faceplate where you want to add a port. The *Faceplate Info* screen displays with the Faceplate name and any existing ports listed in the table.
3. In the *Faceplate Info* screen, click **Add**.
4. Enter the name of the port in the table.
5. (Optional) In the *Notes* section, add a note for this company.
6. (Optional) To insert an attachment:
   a. In the *Attachments* area, click **add** and browse to the location of your attachment, then click **Open**.
   b. If desired, enter a note for the attachment.
   c. Click **OK**.
7. Repeat Steps 3 and 4 to add additional ports to this faceplate.
8. Click **Save** to save the faceplate port information.

Note: The faceplate port information is displayed in the Detail View when you click the faceplate icon in the Navigation Tree.

To remove a faceplate port:

1. On the *NetDoc* Main Page, select **Infrastructure** on the **SETUP** menu.
2. Click to highlight the name of the faceplate with the port you want to delete.
3. The **Faceplate Info** screen appears with the faceplate's name and a list of existing ports. Click on the port you want to delete.
4. Click **Delete**.
5. Click **Save** to complete the deletion.

Note: In the Navigation Tree, when you hover your cursor over a faceplate, the faceplate detail will display in a floating window.

Termination Hardware

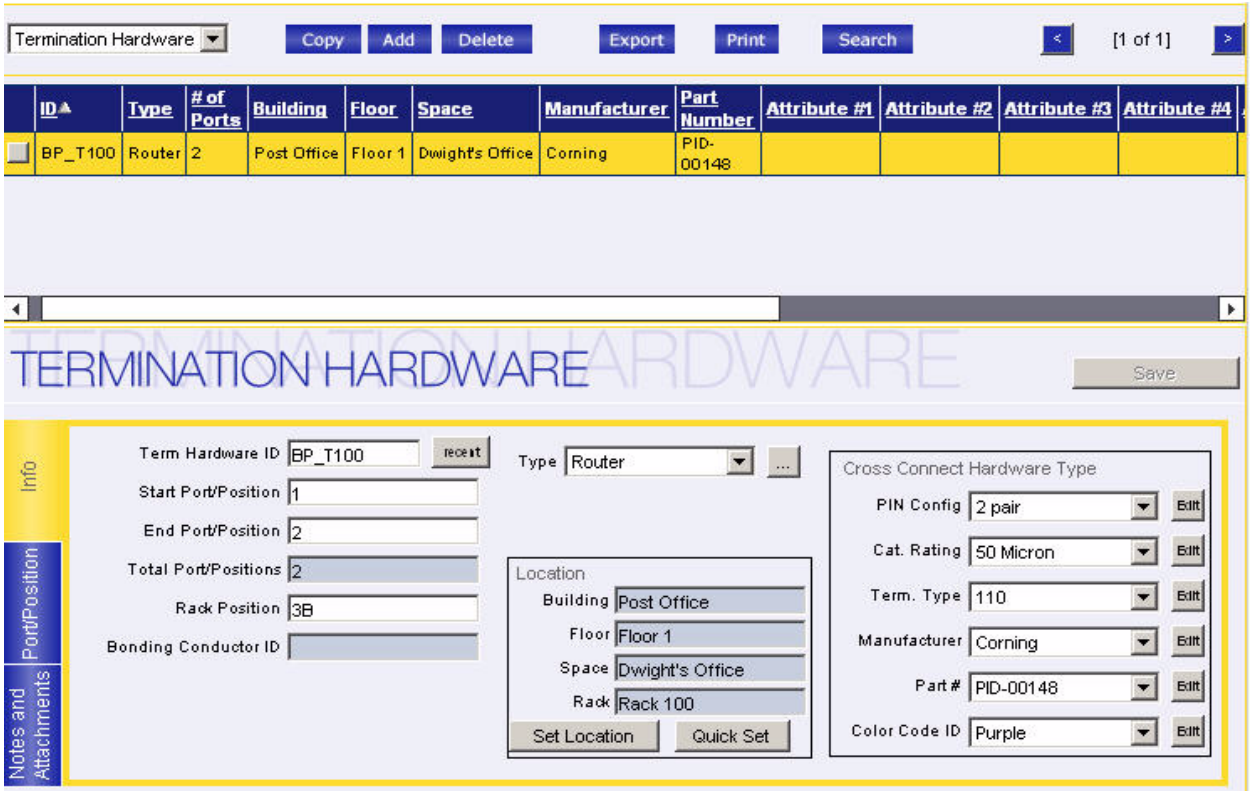
Termination hardware is easily set up and **NetDoc™** makes it simple to locate termination hardware when you need to move cabling; it is also easy to track ports/positions and how each is being used. Before adding Termination Hardware, you must set up the space where it resides (see *"Set Up Indoor Spaces" on page 1-71* for instructions).

Place Termination Hardware in an appropriate Telecommunication Space such as: Consolidation Point, Entrance Room, Handhole, Manhole, Termination Closet, Closet Point or Utility Pole.

Typical termination hardware can include:

- Termination Point
- Consolidation Point
- Termination Closet
- Manhole
- Handhole
- Equipment Room
- MDF
- TJB
- Mechanical Room
- Office Space
- PIN 1
- Relay Rack
- Station Location
- Telecommunication Room
- Termination Shelf
- Underground Duct

Note: Termination hardware must be in place before backbone or asset hardware can be connected or linked. (See *"Termination Hardware " on page 1-82*.)



To add termination hardware:

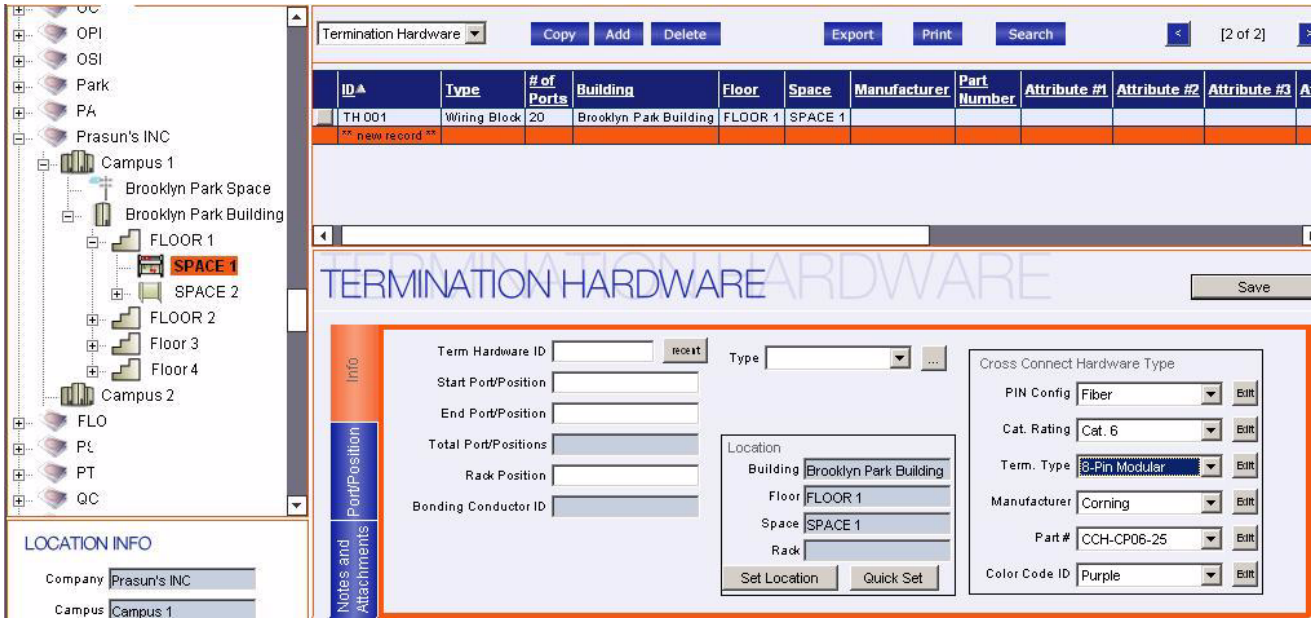
Note: ID, **Termination Type**, and the **Start** and **End Port/Positions** are the only *required* fields needed to add Termination Hardware.

1. On the *Main Page*, click **Launch Application**.
2. On the *Navigation Tree*, highlight the **Telecommunication Space** where you want to add termination hardware.
3. In the *List View* drop-down field, select **Termination Hardware**. The *Termination Hardware* window displays.
4. In the *List View*, click **Add**.
5. Enter the **ID designation**—a unique value by which you will identify this piece of termination hardware.
6. From the drop-down list, select a **Termination Type**.
7. In the *Cross Connect Hardware Type* frame, enter information for the following:
   - PIN Config
   - Cat. Rating
   - Term Type
   - Manufacturer
   - Part #
8. From the drop-down list, select a **Color Code ID**.

Note: Color Code ID is optional to describe the hardware type that can be cross-connected.

9. Enter a **Start** and **End Port/Position** value. The *Number of Port/Positions* field automatically populate (e.g., if you enter "1" for Start and "50" for End, the value in Number of Port/Positions will be 50).

Note: Start and End Port/Position lists the number of physical connections that exist in a specific piece of termination hardware. For patch panels, **ports** are designated; for wiring blocks, **positions** are designated. These physical connections **must** be in place before you can connect anything to the termination hardware.

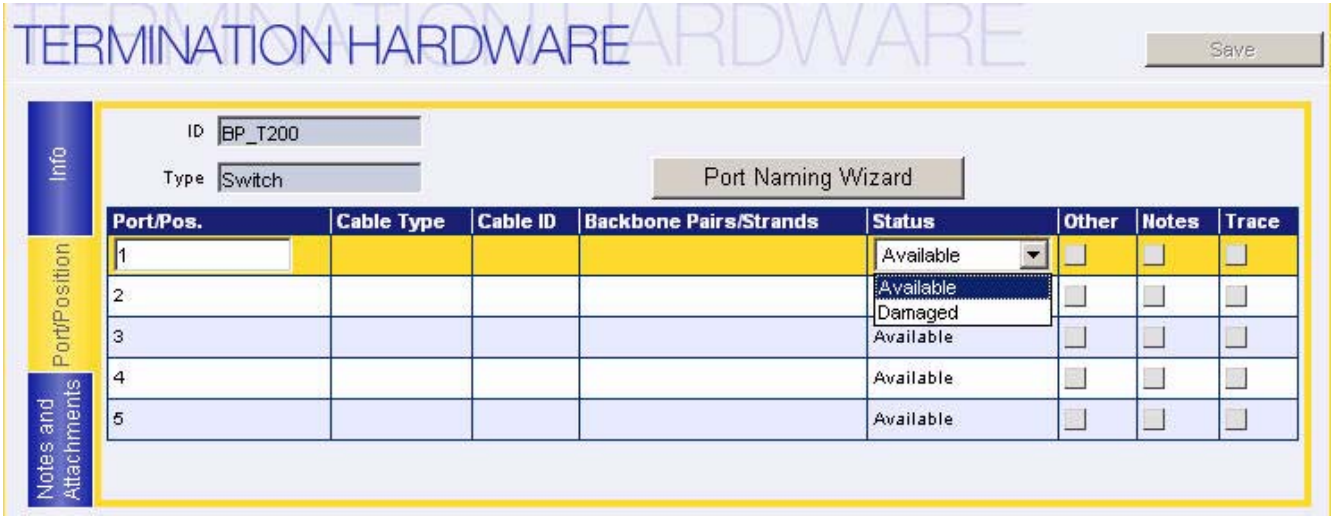


Editing Port/Position Status

The *Port/Position Details* tab shows the availability status of each Port or Position on the termination hardware. For example, when a Port/ Position is connected to a backbone cable, its status changes from “Available” to “Used.” If a Port or Position becomes damaged, you can edit it directly.

The table is populated with the following information for each Port/Position:

- **Cable Type**: Backbone
- **Cable ID**: Cable ID designation
- **Backbone Pairs/Strands**: Indicates the numbers of pairs or strands used
- **Status**: Indicates the status of the port/position (e.g., available, used, damaged)

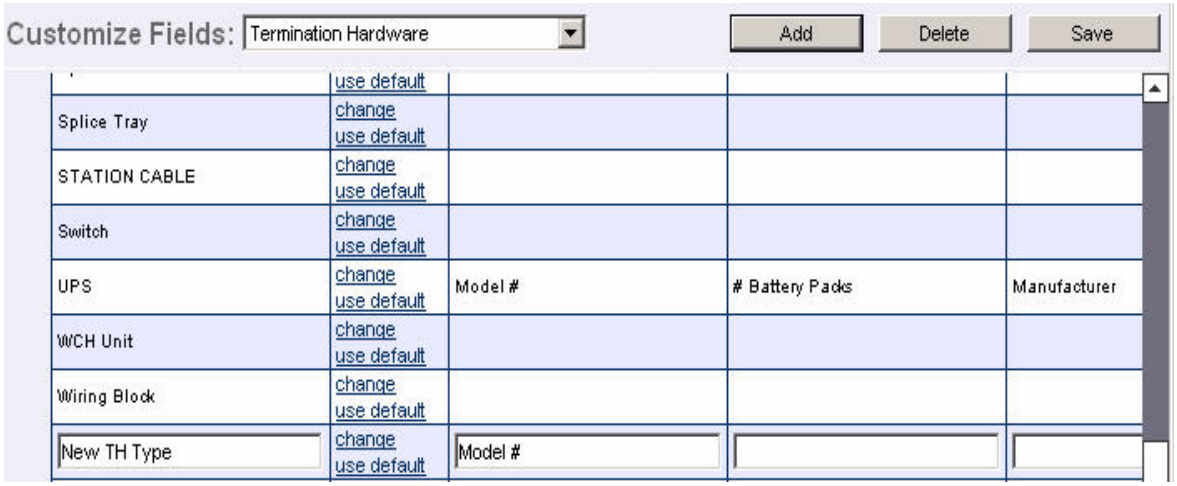


To change the status of a port or position:

1. In the *Details* pane, click the **Port/Position** tab.
2. In the *Status* column, from the drop-down list, choose a status of the Port/Position.
3. Click **Save**.

Defining a new Termination Hardware Type

NetDoc™ comes with many predefined Termination Hardware types. However, you can also define your own unique types.



To define a termination hardware type:

1. On the *Info* tab in the *Termination Hardware Detail* pane, click … to the right of the **Type** field.
2. In the *Customize Fields* window, click **Add**.
3. Enter a **Device Type**.
4. In the *Descriptions* columns, assign up to three descriptions for the new Termination Hardware type.
5. Click **Save**.

To delete a termination hardware type:

1. On the *Info* tab in the *Termination Hardware Detail* pane, click … to the right of the **Type** field.
2. In the *Customize Fields* window, click on the type you want to delete.
3. Click **Delete**.
4. Click **Save**. The termination hardware type will be removed from the drop-down list.

Connecting Termination Hardware to a Backbone Cable

To connect Termination Hardware to a Backbone Cable, go to the Backbone Cables tab in the List View. See *"Adding a Backbone Cable" on page 1-105*.

Connecting to a Horizontal Link

To connect Termination Hardware to a workspace asset via a Horizontal Link, go to the Horizontal Links tab. See *"Viewing a Horizontal Link Trace" on page 1-95*.

Connecting to a Grounding Conductor

See *"Connecting a Backbone to a Grounding Conductor " on page 1-113*.

Assets

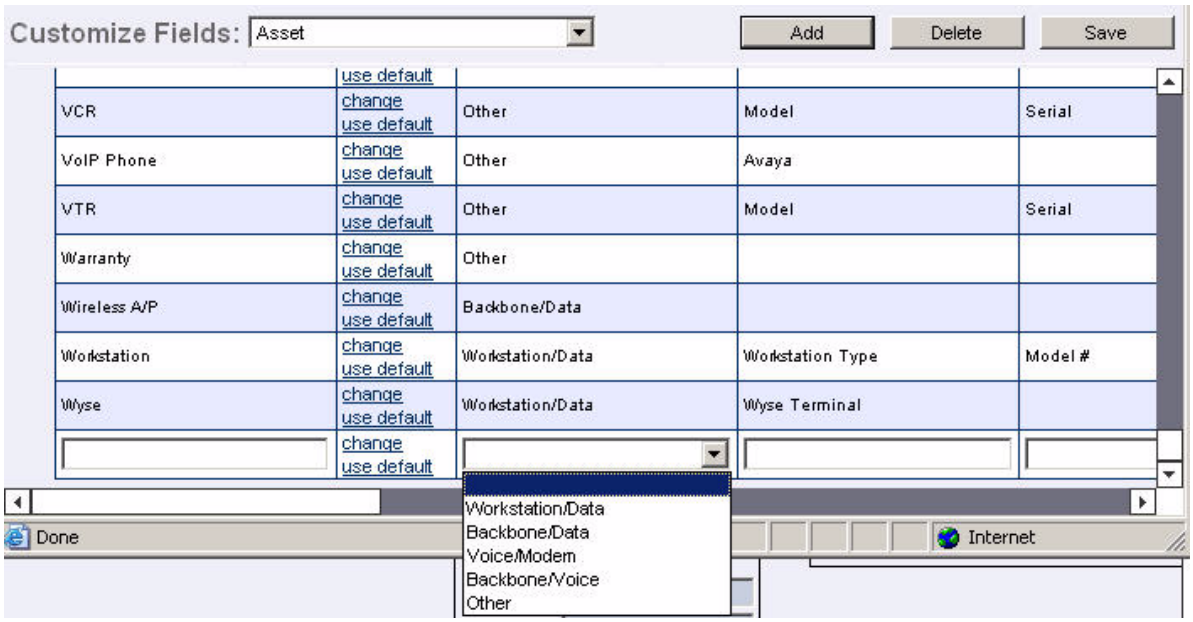
Before adding assets, you must set up the geographical structure of your company. Assets can then be associated with the physical spaces in which they reside (see *"Setting Up the Geographical Infrastructure" on page 1-61*.)

There are two categories of Assets in **NetDoc™**:

- **Workspace Assets**: Associated with workspace and faceplate connections (e.g., computer, fax, or telephone).
- **Backbone Assets**: Associated with a Telecommunication Space (e.g., hub or router).

Create New Asset Types

NetDoc™ comes with many predefined asset types. However, you can also define your own unique types.



To define asset types:

1. On the *Info* tab in the *Termination Hardware Detail* pane, click to the right of the **Type** field.
2. In the *Customize Fields* drop-down list, choose **Asset**, then click **Add**.
3. Enter a new **Asset Type**.
4. Choose a **Device ID** category from the drop-down list. Options are: Workstation/Data, Backbone/Data, Voice/Modem, Backbone/Voice, or Other.
5. In the *Descriptions* columns, assign up to 10 descriptions for the new Asset type.

Example: For a computer, which is a Workstation/Data asset, you might want to include Model, Serial Number, CPU, RAM, Hard Drive, and Operating System (O/S).

6. Click **Save**.

To delete any asset type:

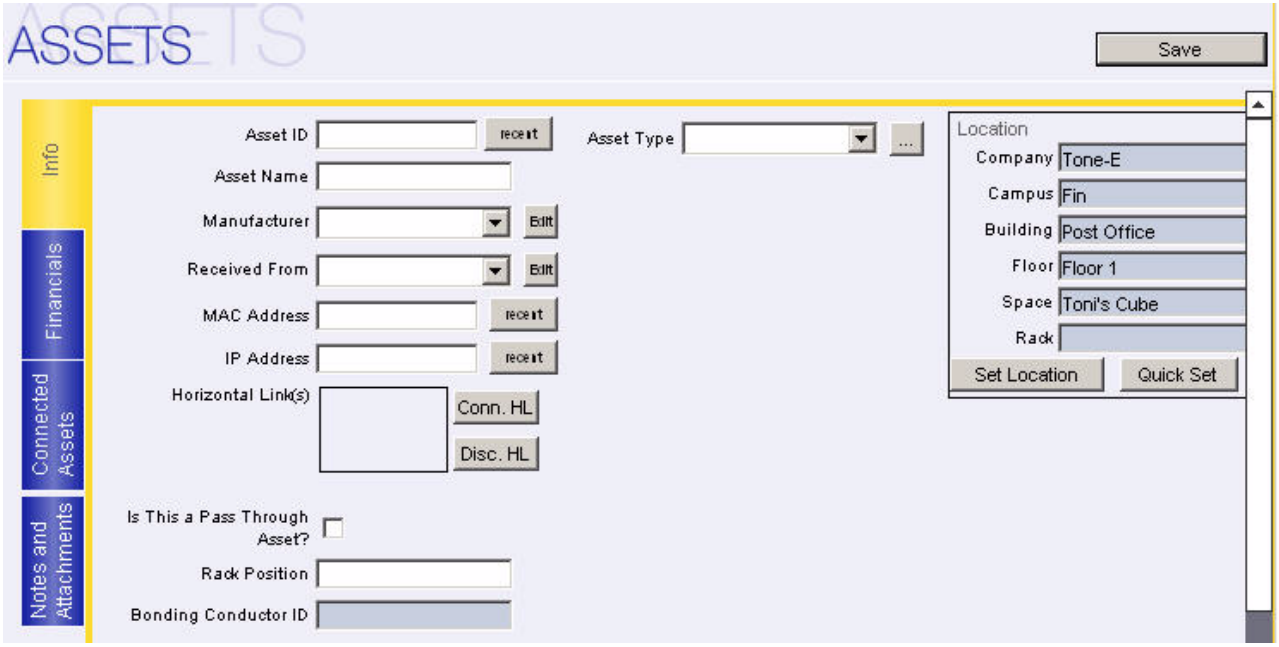
1. On the *Info* tab in the *Termination Hardware Detail* pane, click to the right of the **Type** field.
2. In the *Customize Fields* window, click on the asset you want to delete.
3. Click **Delete**.
4. Click **Save**. The asset type will be removed from the drop-down list.

Add Backbone and Work Area Assets

Backbone assets include hubs, switches, or routers that connect to backbone cables. Work Area assets include computers, printers, fax machines, and similar equipment. The procedure for adding new Backbone or Work Area assets is the same.

To add a new backbone or work area asset:

1. In the *Navigation Tree*, click the location where you want to add a backbone or work area asset.
2. From the *List View* drop-down list, select **Assets**.
3. Click **Add**. A “new record” entry will be created in the list table and a blank form will display in the *Assets* tab of the *Detail View* window.
4. Enter the name and details for the new asset.



Financials

The Financials feature in **NetDoc™** lets you depreciate assets automatically.

To depreciate assets automatically:

1. In the *Navigation Tree*, click the location where you want asset(s) depreciated.
1. From the *List View* drop-down list, select **Assets**.
2. From the spreadsheet table, choose the desired asset.
3. In the *Detail View*, click the tab for **Financials**.
4. In the *Receipt Date* field, click .
5. In the *Select Date* calendar, use the arrows or drop-down fields to find the month and year during which the asset was received at your facility, then click the appropriate date. The selected date will appear in the *Receipt Date* field.

Note: The default *Depreciation Type* is **Straight Line**.

6. Enter values for the following:
   - Original Value
   - Salvage Value
   - Useful Life (in months)

Note: NetDoc™ automatically computes the *Months in Service*, *Current Value*, and *Account Depreciation* (cumulative depreciation).

7. Click **Save**.

Horizontal Links (HL)

A horizontal link is usually set up between a Workspace and a Telecommunication Space, between termination hardware and faceplates. Depending on the type you select, the input form will change (for examples, see the graphics after the procedures). Before you can set up a horizontal link, you must first set up the following:

- Faceplate in the workspace (see *"Faceplates" on page 1-78*).
- Termination hardware in the termination room where you want your faceplate(s) connected (see *"Termination Hardware " on page 1-82*).

Note: Only basic information about the Horizontal Link is required to Save and continue.

Setting Up a Horizontal Link

To set up a horizontal link:

1. In the *Navigation Tree***,** highlight the faceplate in the space where you want the link to **originate**.
2. From the *List View* drop-down list, select **Horizontal Links**.
3. In the *List View* pane, click **Add**. The *Horizontal Links* form displays.
4. In the *HL Type* field, select the type of horizontal link you are creating (depending on your selection, the form will change):
   - Voice
   - Data
   - Unused

   Note: If the Horizontal Link is cabled, an unused HL is set up, but is not specific to whether it will carry voice or data.
5. In the **Horizontal Link Type** area, enter the following:

   Note: Pressing **Tab** after entering an HL ID automatically populates the Cable ID field with the same name or number. If desired, you can change this to a unique Cable ID.

   - Horizontal link ID
   - Pairs Used
   - Conn. Rating
   - Cable Type

6. In the **Outlet Connector Type** group box, enter the following:
   - # of Positions
   - PIN Config.
   - Term. Type
   - Manufacturer
   - Part #
   - Port Color
7. Enter the **Contact** and **Connected Asset** data.

   Note: The Location frame is automatically populated from the Navigation Tree.

8. In the **Backbone Connection** frame, enter the Asset Name, PBX/Switch Port and Extension. If shown, you can also enter the Mainframe PU (Physical Unit) and LU (Logical Unit) information. This only displays if you selected the type Data.
9. In the *Key Sheet*, (only displays if you selected Voice type), (see *"Editing the Key Sheet" on page 1-102*.

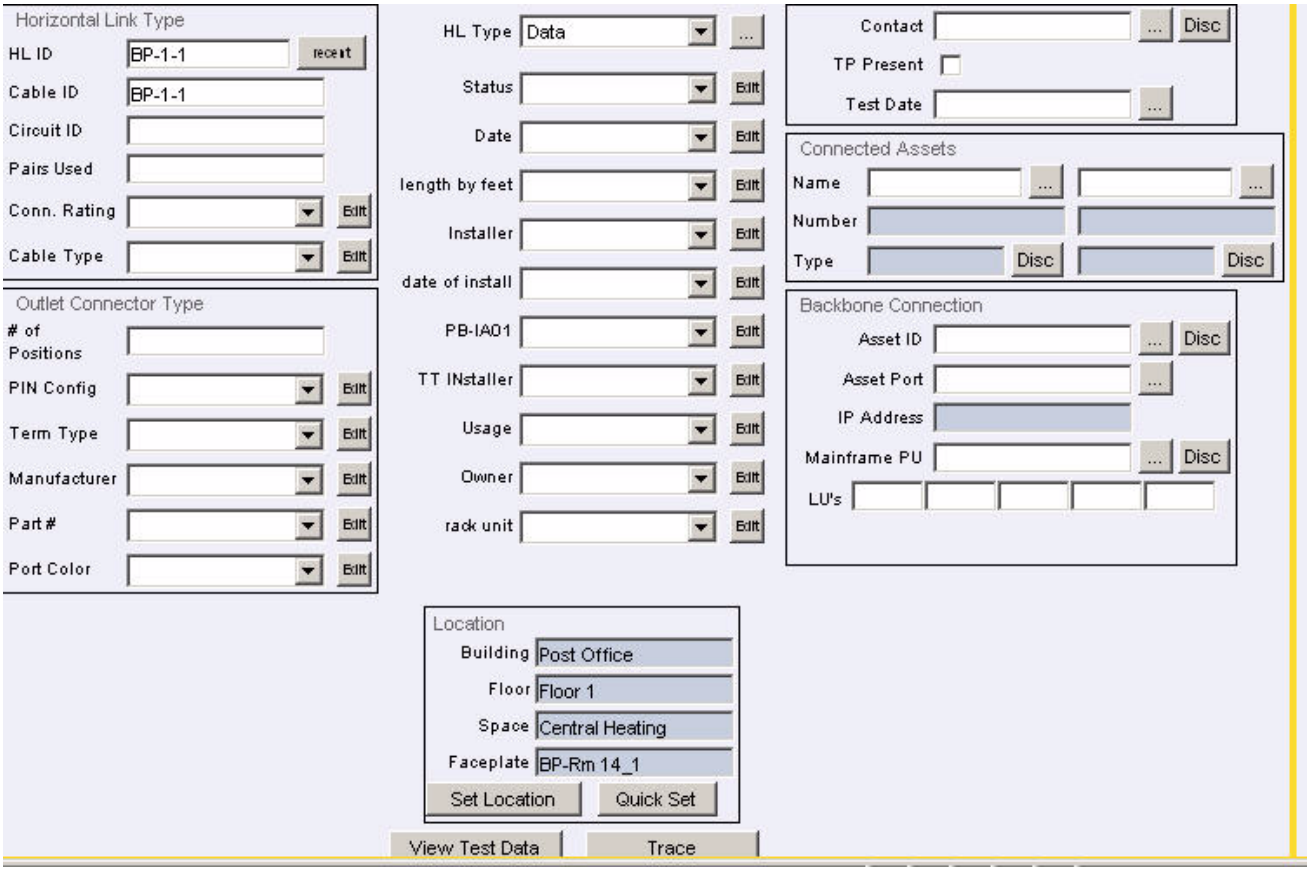


Figure 1. Horizontal Links - Data

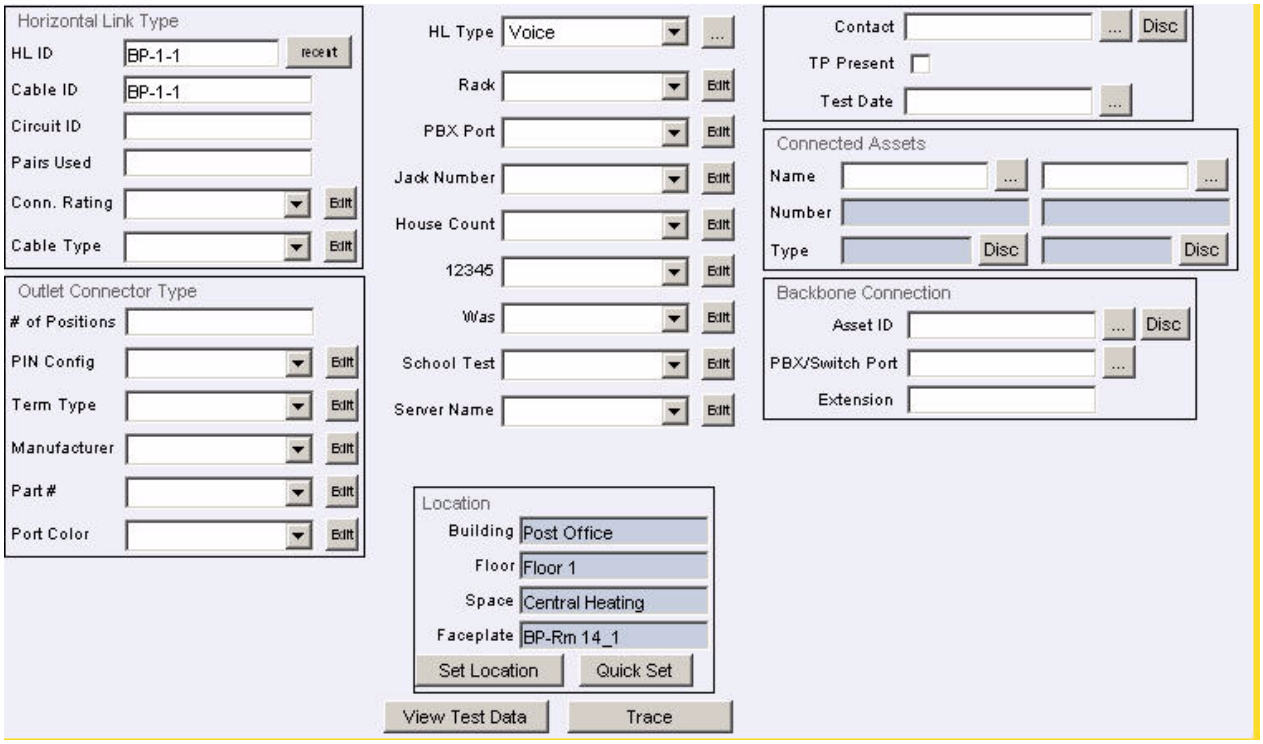


Figure 2. Horizontal Links - Voice

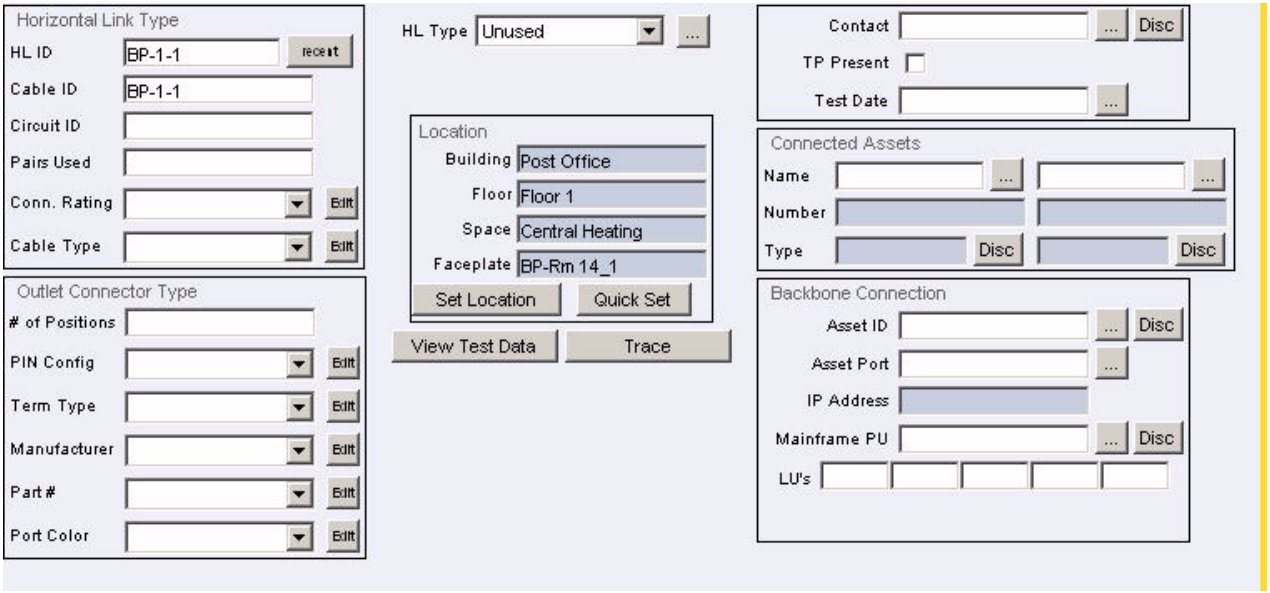


Figure 3. Horizontal Links - Unused

Viewing a Horizontal Link Trace

A Trace button appears on each of the first 3 tabs in the *Horizontal Link Detail* view. Clicking the **Trace** button displays circuit trace information. See *"Circuit and Pathway Trace Tool " on page 1-21* for more information about the trace feature.

Defining New Horizontal Link Types

NetDoc™ comes with many predefined Horizontal Link types. However, you can also define your own unique HL types.

To set up horizontal link types:

1. In the *Horizontal Links Detail* pane, click to the right of the **HL Type** field.
2. Click **Add**. A new entry will display in the *Customize Fields* list.
3. Enter the new **Device Type**.
4. In the *Descriptions* columns, assign up to 10 descriptions for the new Horizontal Link type.
5. Click **Save**.

To delete a horizontal link type:

1. In the *Horizontal Links Detail* pane, click to the right of the **Type** field.
2. In the *Customize Fields* window, click on the type you want to delete.
3. Click **Delete**.
4. Click **Save**. The termination hardware type will be removed from the drop-down list.

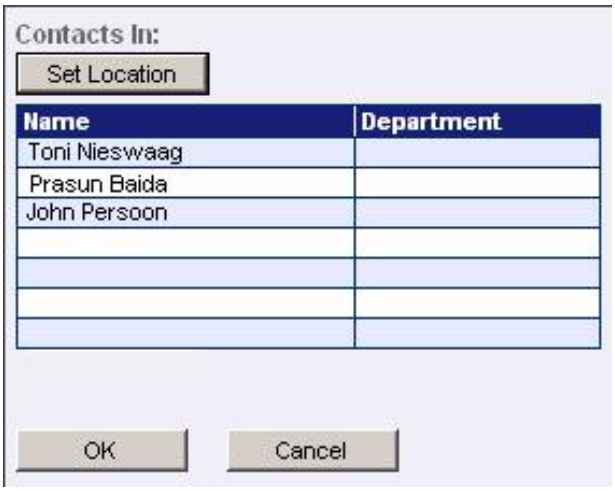
Connecting Horizontal Links

Connecting Contacts to a Horizontal Link

Only basic information in the *Horizontal Link* type frame is required for you to continue setting up a Horizontal Link. You may, however, select users associated with this link.

To connect a contact:

1. In the *Contact* section, click ... . The *Select Contact* window displays with all users associated with the selected Horizontal Space.
2. To quickly sort through the list, click the column heading.
3. To connect to a contact not currently located in the same space, or to locate a user, click **Set Location**.

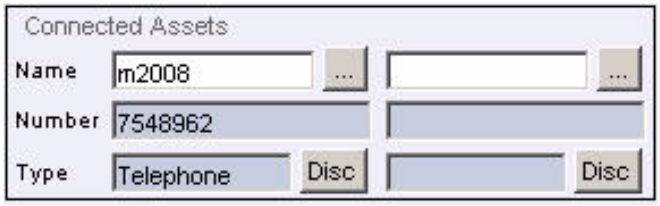


4. Locate and select the user, then click **OK** to close the navigation window.
5. Click *OK* to close the *Contact* window and add the selected user as a contact.

To disconnect a contact from the horizontal link:

1. In the *Horizontal Links* window, click Disc next to the **Contact** name.
2. Click **OK** when asked if you want to disconnect the contact from this horizontal link. The contact will be removed from this horizontal link.

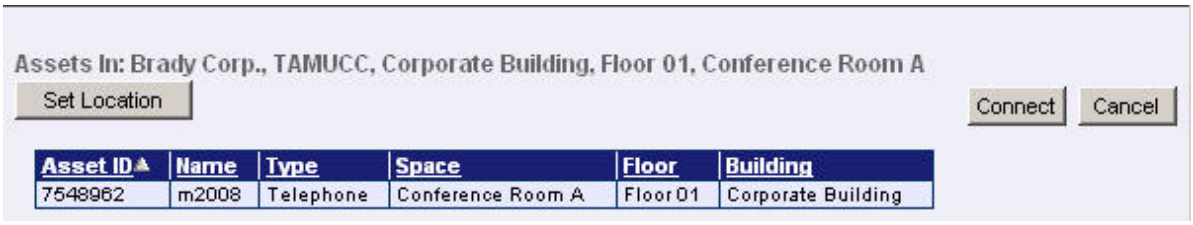
Connecting Workstation Assets to a Horizontal Link



To connect a workstation asset:

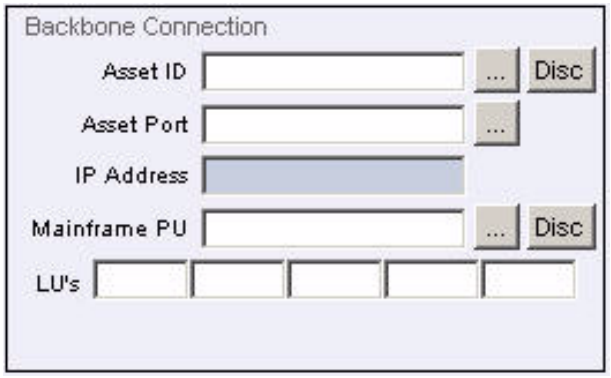
1. In the *Connected Assets* box, click ... next to the **Name** field.

2. The **Attach Asset** window appears. Only other workstation assets appear in this window and are available for connection.



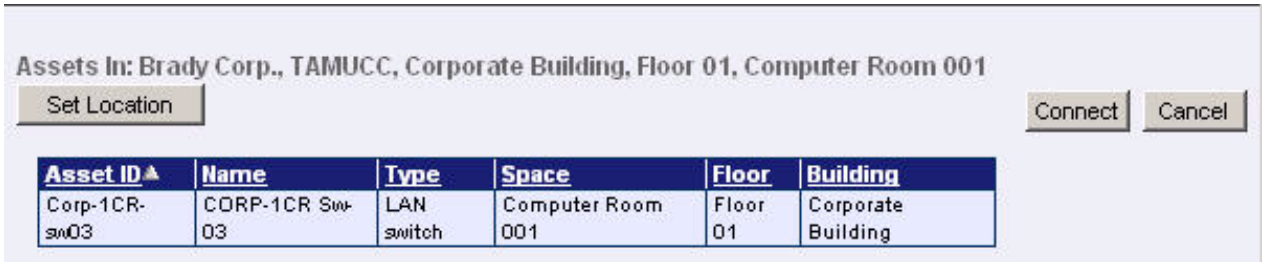
3. To quickly sort through the list, click the column heading.
4. Select the asset and click **Connect**. The grayed *Number* and *Type* fields are populated.

Connecting a Data Horizontal Link to a Backbone Asset

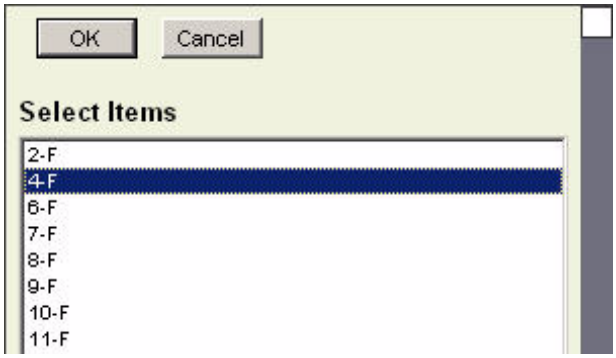


To connect to a backbone asset:

1. In the *Backbone Connection* box, click ... next to the **Asset ID** field.
2. The **Attach Asset** window appears with the available backbone assets listed.



3. To quickly sort through the list, click the column heading.
4. Select the asset you want to attach, then click **Connect**.
5. Click ... next to the **Asset Port** field.
6. In the *Port/Pairs* window, select the port to which the horizontal link will connect, then click **OK**. The Asset *Port* ID address will be automatically populated with the backbone asset.

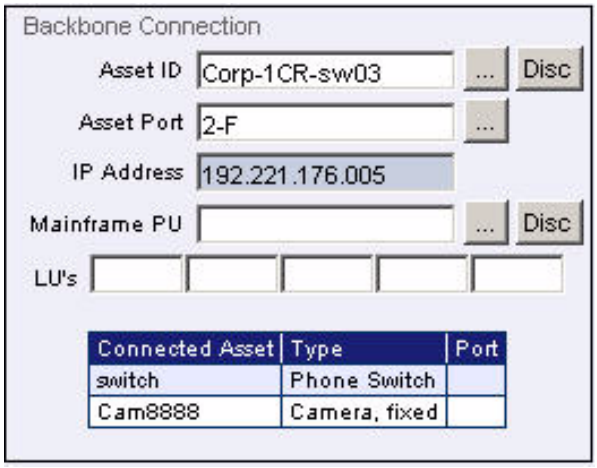


7. Click **Save**.

Connecting a Data Horizontal Link to a Mainframe Asset

To connect to a mainframe asset:

1. In the *Horizontal Link* window, go to the **Backbone Connection** group box.
2. Click ... next to the **Mainframe PU** field.

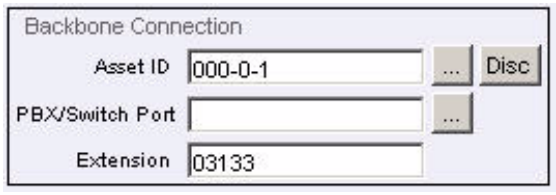


3. The *Attach Asset* window appears with Mainframe Assets listed.
4. To quickly sort through the list, click the column heading.
5. Select the mainframe to which you want to connect, then click **Connect**.
6. Enter all appropriate **Logical Unit's (LUs)**, then click **Save**.

Connecting a Voice Horizontal Link to a Backbone Asset

To connect a voice link to a backbone asset:

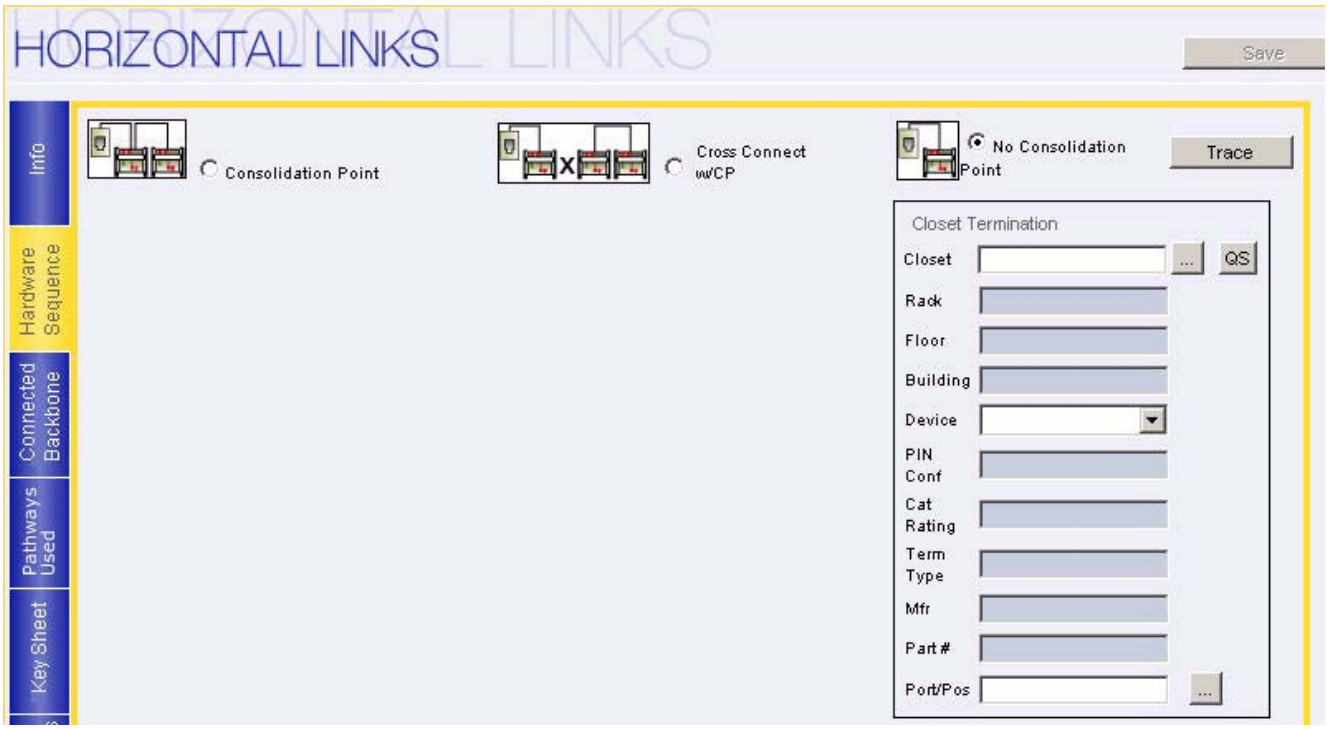
1. In the *Backbone Connection* box, click ... next to the **Asset ID** field.
2. The *Attach Asset* window appears with the voice backbone assets listed.
3. To quickly sort through the list, click the column heading.
4. Select the asset to which the voice horizontal link will connect, then click **Connect**.
5. Enter the **PBX/Switch Port** and the **Extension** in those fields. Click **Save**.



Connecting a Horizontal Link to Termination Hardware

In the physical infrastructure, this is where the horizontal link is connected to the termination hardware. In the
HL Hardware Sequence tab, three radio buttons are available:

- **No Consolidation Point:** Most Horizontal Links are made with *No Consolidation Point*. This is typically with a simple data connection from a faceplate in a workspace to termination hardware (a Patch Panel or Wiring Block) in a Telecommunication Space.
- **Consolidation Point**: A *Consolidation Point* is rarely used. However, when used, it brings a high pair count cable from Termination Hardware in the Closet (e.g., Patch Panel or Wiring Block) to a central location in the ceiling (e.g., column, office furniture, under the floor) terminated in Termination Hardware.
- **Cross Connect w/CP**: A *Consolidation Point with Cross-Connect* uses two pieces of termination hardware to connect the large pair cable from the Closet to a small pair cable at the Faceplate with the cross-connect in-between.



Connecting a Horizontal Link to a Grounding Conductor

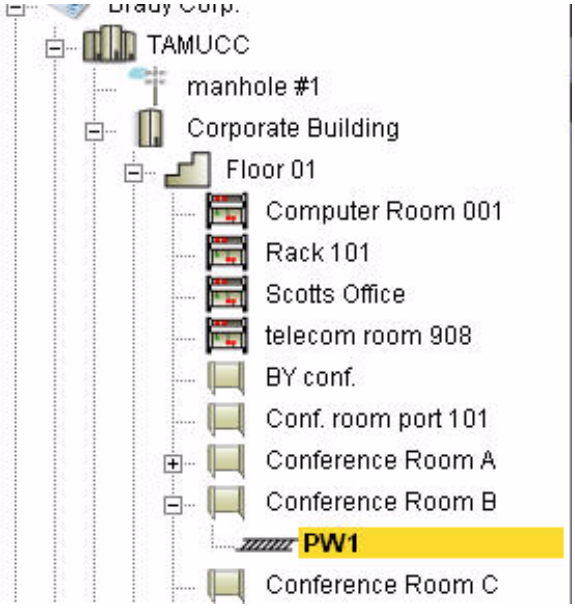
See *“Grounding” on page 1-114*.

Identifying Horizontal Link Pathways Used

You must establish Pathways before you can identify the pathways used in horizontal links (see *"Adding a Pathway" on page 1-120*.

To identify pathways used:

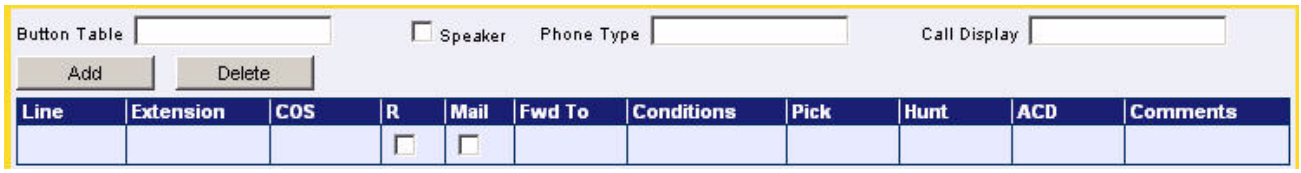
1. On the *Horizontal Link*, click the **Pathways Used** tab.
2. In the *Detail* area, click **Add**.
3. In the *Select Location* window, select the **Pathway** that will be used by the Horizontal Link.
4. Click **Accept**. The Pathway information populates the form.
5. Click **Save.**



Editing the Key Sheet

The *Key Sheet* is used to describe the type of phone, phone connection (line) from the phone switch and voicemail information.

The Key Sheet tab is available only when you are creating a Voice/Modem horizontal link. The top bar contains fields that apply to the physical telephone: Button Table, Speaker, Phone Type, and Call Display. The form on the lower part of the tab contains information pertaining to the actual connection.



To edit the key sheet:

1. Click the **Key Sheet** tab.
2. In the *Detail* area, click **Add**.
3. Click in the fields to enter the information for: **Line**, **Extension** and **COS**.
4. If applicable, click the check boxes for **R** (Ring) and **Mail**.
5. Click in the fields to enter the information for: **Fwd To**, **Conditions**, **Pick**, **Hunt** and **ACD**.
6. If desired, enter additional information in the comments box.
7. To add more lines, click **Add**.
8. When done, click **Save**.

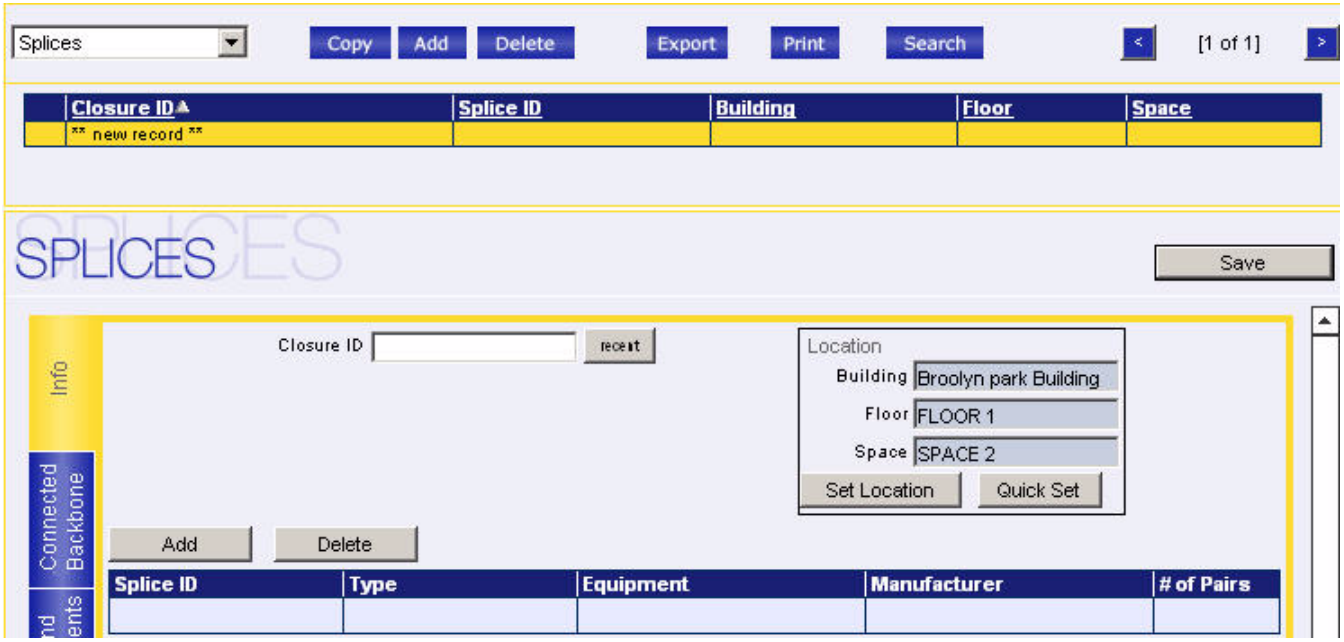
Splices

Backbone cables between termination hardware often need to be spliced together. The splice is housed in a container known as a closure. Multiple splices can be housed within one closure.

Adding Splices

To add splices to the closure:

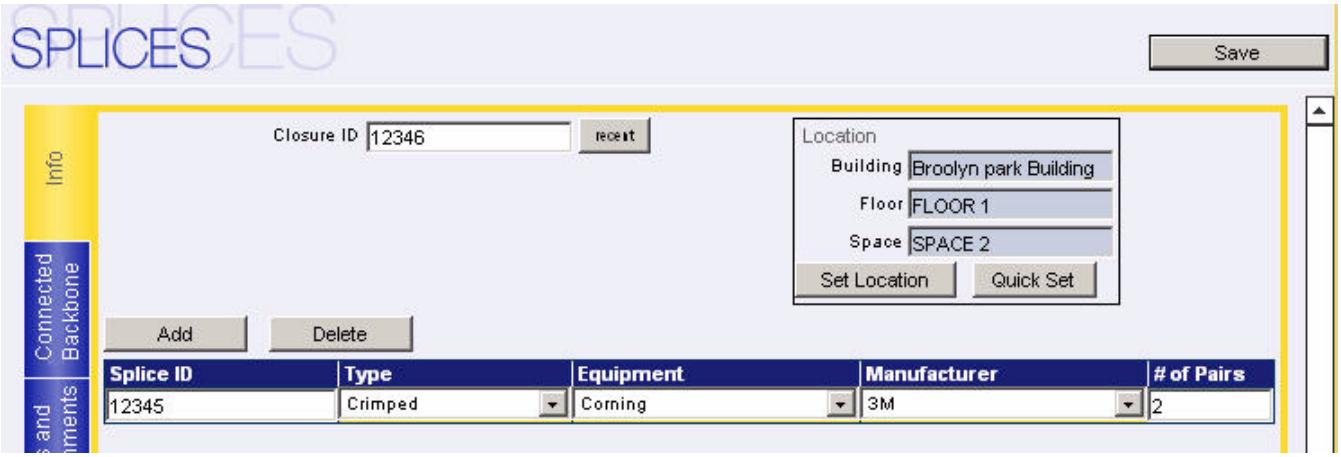
1. Highlight the space where you want to set up a splice. A backbone cable may already exist, but is not required to set up the splice.
2. In the *List View* pane drop-down list, choose **Splices**.
3. In the *Spreadsheet* area, click **Add**.
4. Place the cursor in the *Closure ID* field and enter the **Closure ID**.
5. Click **Save**.



Adding User-defined Splice Types

To add user-defined splices to the closure:

1. In the *List View* pane drop-down list, choose **Splices**.
2. In the *Spreadsheet* area, click **Add**.
3. In the *Splice ID* column, enter the splice **ID**.
4. In the *Type* column, enter the splice **Type**, or select an existing type from the drop-down list.
5. In the following columns, enter the appropriate information:
   - **Equipment:** Enter a new equipment, or select existing equipment from the drop-down list.
   - **Manufacturer:** Enter a manufacturer, or select an existing manufacturer from the drop-down list.
   - **# of Pairs:** Enter the maximum number of cable pairs that this splice can contain.
6. When done, click **Save**.



Connecting a Backbone Cable to a Splice

Connecting a backbone cable to a splice must be done from the Backbone area (see *"Backbone Cables" on page 1-105*).

Once you have spliced a backbone cable, you can view all backbones connected to a splice in the *Connected Backbones* tab from the Detail View of a splice.

Backbone Cables

Backbone cables are run between termination hardware. These cables are often run from building to building and closet to closet.

Note: NetDoc™ was built to allow for several connection types, depending on the needs of the end user. By providing this functionality, backbone cables can connect to hardware, through splices and backbone-related assets, if needed. See *"Setting Backbone Source and Destination" on page 1-107*.

Adding a backbone cable is accomplished in the *Detail View* of the *Backbone Cable*.

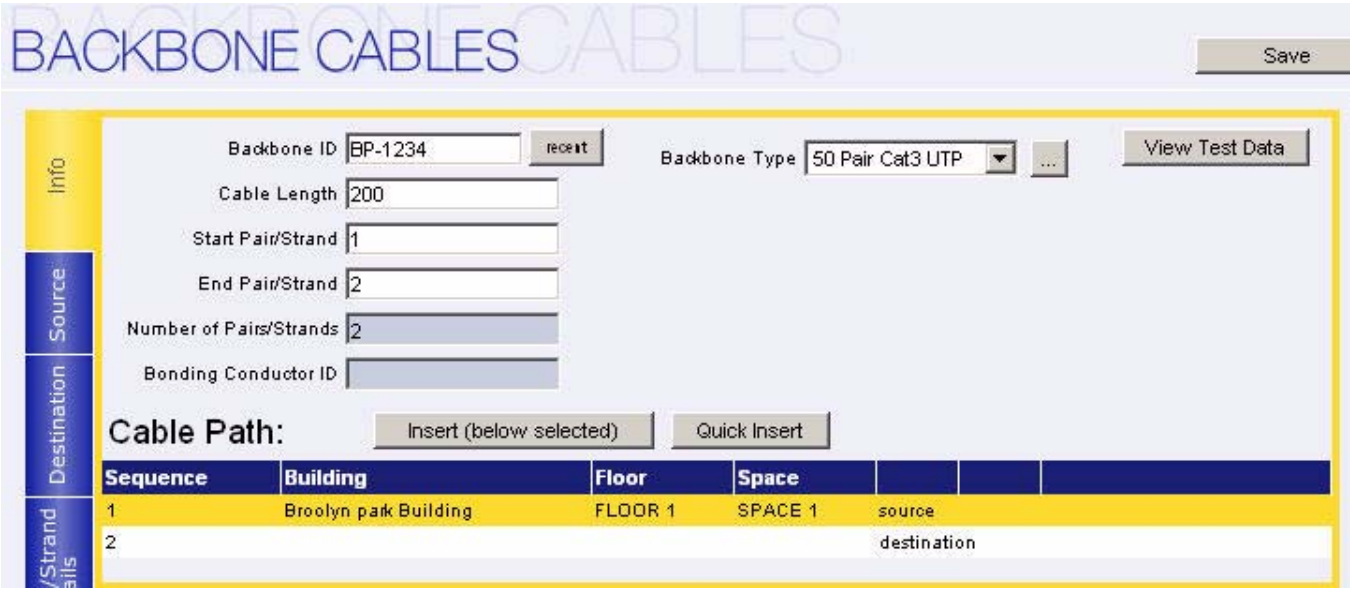
Adding a Backbone Cable

To add a backbone cable:

1. On the *Navigation Tree*, highlight the **space** where the backbone cable will start.
2. In the *List View* pane drop-down list, choose **Backbone Cables**.
3. In the *List View* area, click **Add**.
4. In the *Backbone ID* field, enter the backbone **ID**.
5. Choose a **Backbone Type**.
6. Enter **Cable Length**, **Start Pair/Strand**, and **End Pair/Strand**.

Note: The grayed *Number of Pair/Strands* field is populated automatically.

7. Click **Save**.



Defining a Backbone Cable Type

NetDoc™ comes with many pre-defined Backbone types. However, you can also define your own backbone types.

To set up a backbone cable type:

1. On the *Navigation Tree*, highlight the **Space** where the backbone cable will start.
2. In the *List View* pane drop-down list, choose **Backbone Cables**.
3. In the *Detail* area next to the *Backbone Type* field, click ... .
4. Click **Add**.
5. In the *Customizable Fields* window, click **Add**.
6. Enter the new **Backbone Type** and up to **10** descriptions for the new type.
7. Click **Save**.

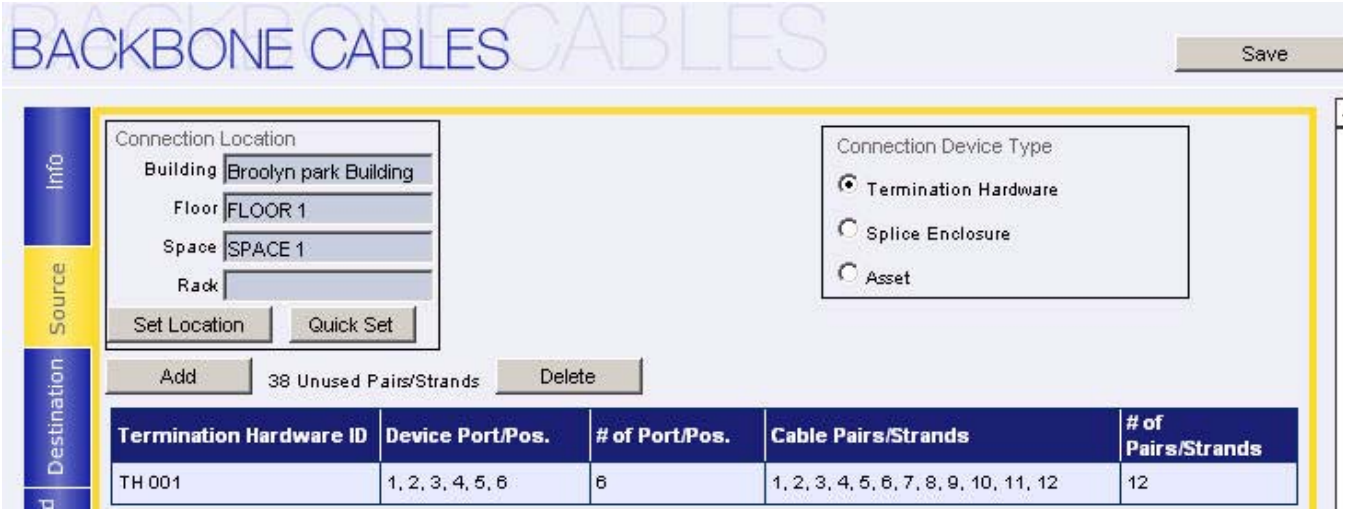
To delete a backbone cable type:

1. On the *Navigation Tree*, highlight the **Space** where the backbone cable will start.
2. In the *List View* pane drop-down list, choose **Backbone Cables**.
3. In the *Detail* area next to the *Backbone Type* field, click ... .
4. Click in the box of type you want to delete, then click **Delete**.
5. Click **Save**.

Setting Backbone Source and Destination

To set the backbone source:

1. On the *Navigation Tree*, highlight the **Space** where the backbone cable is located.
2. In the *List View* pane drop-down list, choose **Backbone Cables**.
3. Click the **Source** tab. The *Connection Location* box is populated with the selected source location.
4. In the *Connection Device Type* box, click the appropriate radio button:
   - **Termination Hardware:** If this backbone starts on termination hardware.
   - **Splice Enclosure:** If the backbone starts at a splice.
   - **Asset**: If the backbone starts at an asset.
5. Click **Save.**

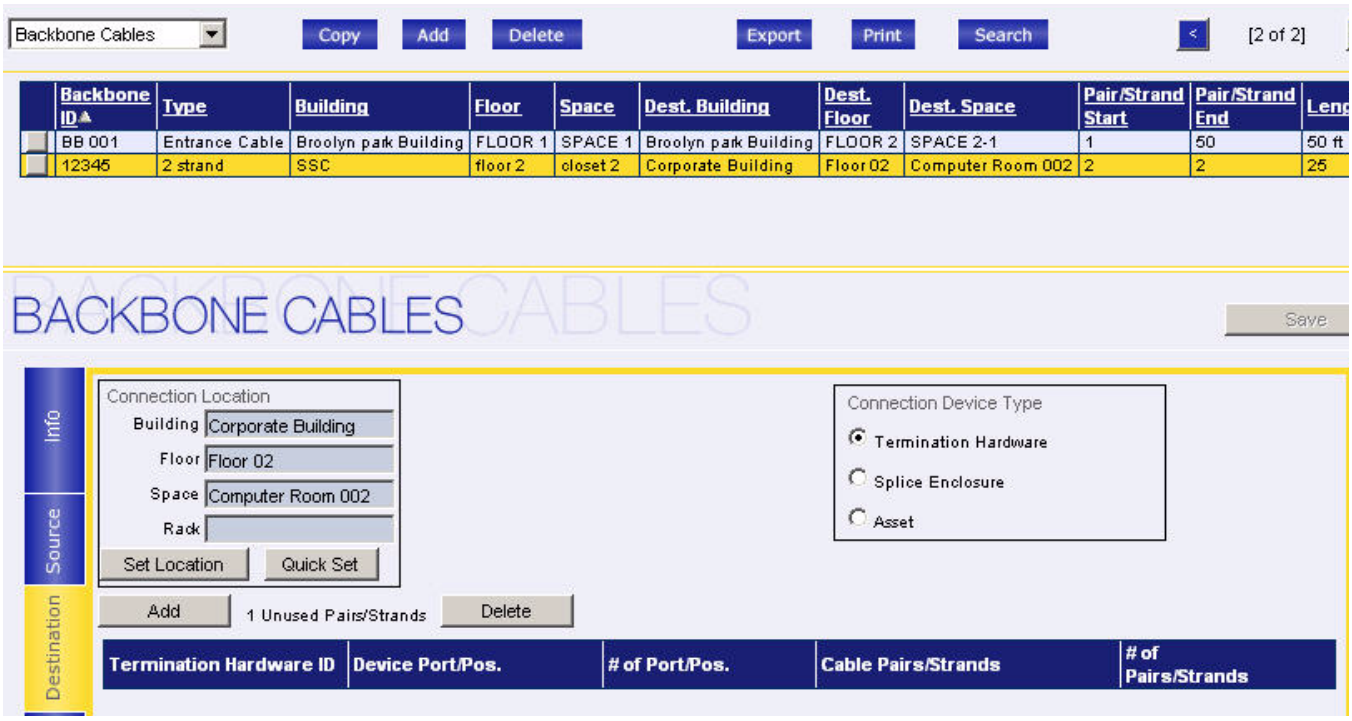


To set the backbone destination:

Note: The Destination tab function is similar to the Source tab, except that the *Connection Location Select* information is not populated.

1. On the *Navigation Tree*, highlight the **space** where the backbone cable is located.
2. In the *List View* pane drop-down list, choose **Backbone Cables**.
3. Click the **Destination** tab.
4. In the *Connection Location* window, click **Set Location**.
5. From the *Navigation Tree*, choose the **Destination**. The Building, Floor, and Space are automatically populated, unless you are connecting from an outdoor space (e.g., a Utility Pole), in which case, only Space is populated.
6. Click **Accept**.

7. In the *Connection Device Type* box, click the appropriate radio button:
   - **Termination Hardware:** If this backbone ends on termination hardware.
   - **Splice Enclosure:** If the backbone ends at a splice.
   - **Asset**: If the backbone ends at an asset.
8. Click **Save.** The Destination information is shown in the spreadsheet view.



Backbone Pair/Strand Details Tab

The *Pair/Strand Details* tab shows the status of every pair/strand on the current backbone cable. For every backbone cable attached to the highlighted space on the Navigation Tree, the Status column reflects whether the port or position is Available or Used.

Note: You can change a pair/strand status to *Damaged* from this tab, but to change the status from Available to Used, you must make or break the connection from the Source and Destination tabs.

To change the status of a damaged port:

1. On the *Navigation Tree*, highlight the **Space** where the backbone cable is located.
2. In the *List View* pane drop-down list, choose **Backbone Cables**.
3. Click the **Pair/Strand Details** tab.
4. From the *Status* drop-down list, choose **Damaged**.
5. Click **Save**.

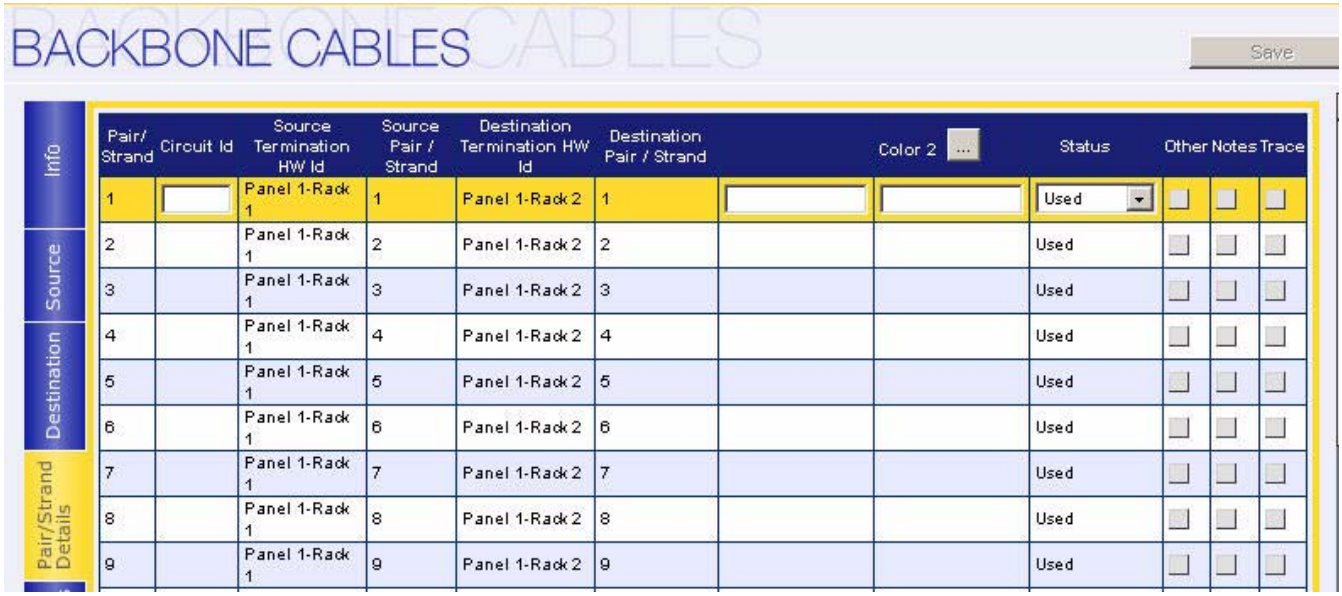
Note: Changing a cell to Damaged status does not automatically disconnect the cable from this port (i.e., you will still have a connection to a damaged pair/strand).

To add a Circuit ID name:

You can add a Circuit ID name on the *Pair/Strand Details* tab. The Circuit ID name can be any combination of alpha or numeric characters. You can also have the same Circuit ID name for multiple items.

Note: You can search by Circuit ID from any view with a **Search>Circuits** option.

1. On the *Navigation Tree*, highlight the S**pace** where the backbone cable is located.
2. In the *List View* pane drop-down list, choose **Backbone Cables**.
3. Click the **Pair/Strand Details** tab.
4. In the *Circuit Id* column, enter the ID that you want for this item.



Pair/ Strand	Circuit Id	Source Termination HW Id	Source Pair / Strand	Destination Termination HW Id	Destination Pair / Strand		Color 2 ...	Status	Other	Notes	Trace
1		Panel 1-Rack 1	1	Panel 1-Rack 2	1			Used			
2		Panel 1-Rack 1	2	Panel 1-Rack 2	2			Used			
3		Panel 1-Rack 1	3	Panel 1-Rack 2	3			Used			
4		Panel 1-Rack 1	4	Panel 1-Rack 2	4			Used			
5		Panel 1-Rack 1	5	Panel 1-Rack 2	5			Used			
6		Panel 1-Rack 1	6	Panel 1-Rack 2	6			Used			
7		Panel 1-Rack 1	7	Panel 1-Rack 2	7			Used			
8		Panel 1-Rack 1	8	Panel 1-Rack 2	8			Used			
9		Panel 1-Rack 1	9	Panel 1-Rack 2	9			Used			

Backbone Cross-Connects

The *Cross-Connects* tab shows status for Source and Destination cross-connects. This form can be edited.

Note: Cross-connects are only applicable at the backbone ends connected to termination hardware.

To make a cross-connect:

1. On the *Navigation Tree*, highlight the **Space** where the backbone cable is located.
2. In the *List View* pane drop-down list, choose **Backbone Cables**.
3. Click the **Cross Connects** tab.
4. Locate the cable pair you want to cross-connect.
5. Click the drop-down list for the *Connection Type* and choose: **Available**, **Horizontal Link**, **Backbone Cable**, or **Asset**.

Note: To cross-connect to a cable, that cable must be connected to termination hardware.

6. In the *Connection ID* cell, choose the **ID** of the item to which you are cross-connecting. Only items connected to termination hardware in that backbone space are available.
7. Click in the **Pair #** column. The *Select Items* window appears with a list of available pairs/strands for the selected item.
8. Choose the pairs/strands to which you are cross-connecting, then click **OK**. The *Termination Hardware* and *Port/Pos* columns automatically populate with the information for the other end of the cross-connected cable.
9. Click **Save**.

BACKBONE CABLES
Save
Info
Source
Destination
Pair/Strand Details
Cross Connects
Source
Pair/Port
Term Hardware
Port/Pos
Connection Type
Connection ID
Loc
Pair/Port
Term Hardware
Port/Pos
Trace
1
C-C309-FP1A
20
Asset
Corp-309-sw01
2-F
2
C-C309-FP1A
21
Horizontal Link
Destination
Pair/Port
Term Hardware
Port/Pos
Connection Type
Connection ID
Loc
Pair/Port
Term Hardware
Port/Pos
Trace

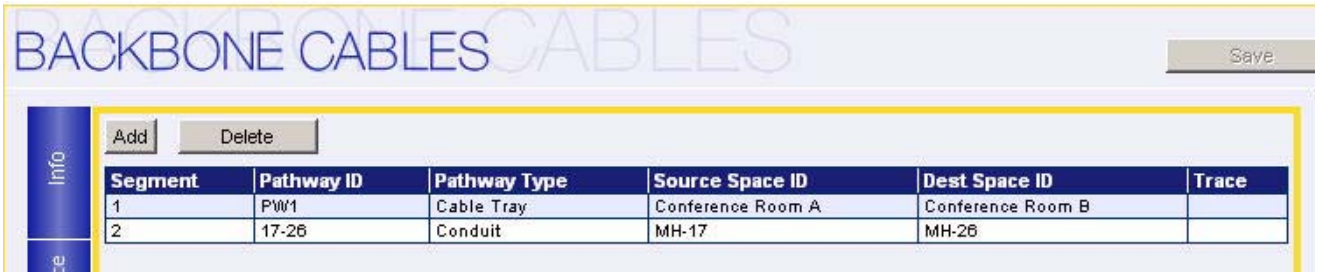
Identifying Backbone Pathways Used

The *Pathways Used* tab identifies the pathways in which the backbone is located. When adding pathways, add them in order from Source to Destination.

To add pathways used:

1. Click the **Pathways Used** tab.
2. In the *Detail* area, click **Add**.
3. In the *Location* window, select the first Pathway this backbone is in, then click **Accept**. The Segment, Pathway ID, Pathway Type, and Source are populated on the table.
4. Click **Save**.

Note: The Segment column identifies the order in which the backbone uses each of the pathways.



Connecting a Backbone to a Grounding Conductor

If a Grounding Conductor has been set up in the Grounding tab and connected to the current backbone, the Bonding Conductor ID field will be populated in the Backbone Info tab. See *"Grounding" on page 1-114*.

Grounding

Grounding runs excess electrical current to ground. Grounding is needed for backbone cables, assets, pathways, and termination hardware. In **NetDoc™**, a busbar must be set up prior to setting up grounding conductors. See *"Adding Busbars" on page 1-114*.

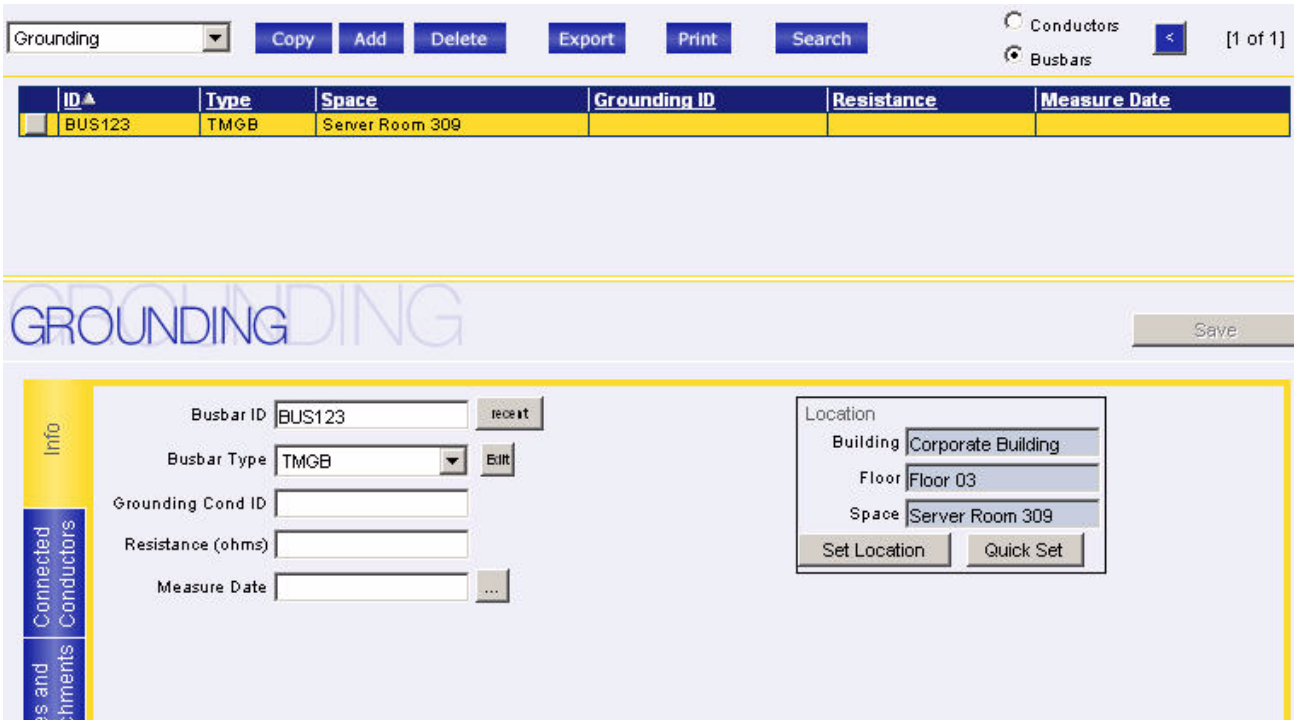
Adding Busbars

Busbars must be set up before you can set up conductors.

To add a busbar:

1. On the *Navigation Tree*, highlight the **Space** that contains the grounding busbar.
2. In the *List View* pane drop-down list, choose **Grounding**.
3. In the *List View* pane, click the **Busbars** radio button and then **Add**. The *Location* box in the *Detail View* is populated with the space where the busbar will be set up.
4. In the *Busbar ID* field, enter the **ID**.
5. In the *Busbar Type* field drop-down list, choose a **busbar type**.
6. Click **Save**.

Note: TMGB (Telecommunications Main Ground Busbar) is the main busbar that goes directly to the earth ground. The Grounding Conductor ID is the main conductor that connects the TMGB to the ground. The TGB (Telecommunications Ground Busbar) is a busbar that will connect to a conductor. Select it from the Busbar Type drop-down list. No other fields appear on the tab when TGB is selected.



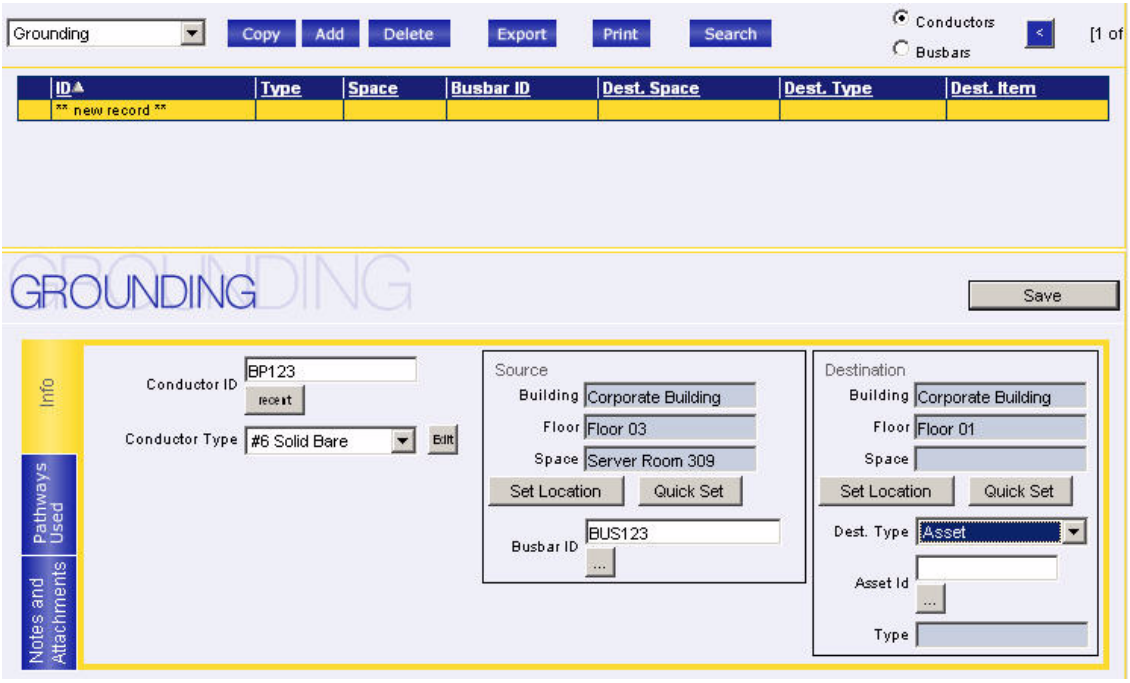
Adding a Conductor

You can add a conductor after adding appropriate busbars for the highlighted space.

To add a conductor:

1. On the *Navigation Tree*, highlight the **Space** that contains the grounding busbar.
2. In the *List View* pane drop-down list, choose **Grounding**.
3. Click the **Conductors** radio button and then **Add**.
4. In the *Conductor Info* tab, enter the **Conductor ID**.
5. From the *Conductor Type* drop-down list, select a **conductor type**. The Building, Floor, and Space are populated with your location in the *Source* box.
6. Next to the **Busbar ID** field, click .
7. In the *Select Item* window, select a busbar located in that space, then click **OK**.
8. In the *Destination* box, click **Set Location**.
9. Choose a destination location then click **Accept**. The destination Building, Floor, and Space are populated.
10. From the *Dest. Type* drop-down list, select the destination type. and complete the appropriate fields (the options change depending on which destination type you selected):
    - **Asset:** *Asset ID*, *Type*, and *Name* fields appear in the *Destination* box. Click the button next to **Asset ID**. In the *Select Item* window, select **Asset ID** and click **OK**. The *Type* and *Name* fields populate.
    - **Backbone:** *Backbone ID* and *Type* fields appear. Click the button next to **Backbone ID**. In the *Select Item* window, select the **Backbone ID** and click **OK**. The *Backbone ID* and *Type* fields populate.
    - **Busbar:** *Busbar ID* and *Type* fields appear. Click the button next to the **Busbar ID** field. In the *Select Item* window, select the **Busbar ID** and click **OK**. *Busbar ID* and *Type* fields populate.
    - **Pathway:** *Pathway ID* and *Type* fields appear. Click the button next to the **Pathway ID** field. In the *Select Item* window, select the **Pathway** and click **OK**.
    - **Term HW:** Term *HW ID* and *Type* fields appear. Click the button next to the **Term HW ID** field. In the *Select Item* window, select the **Term HW ID** and click **OK**. The *Type* field populates.

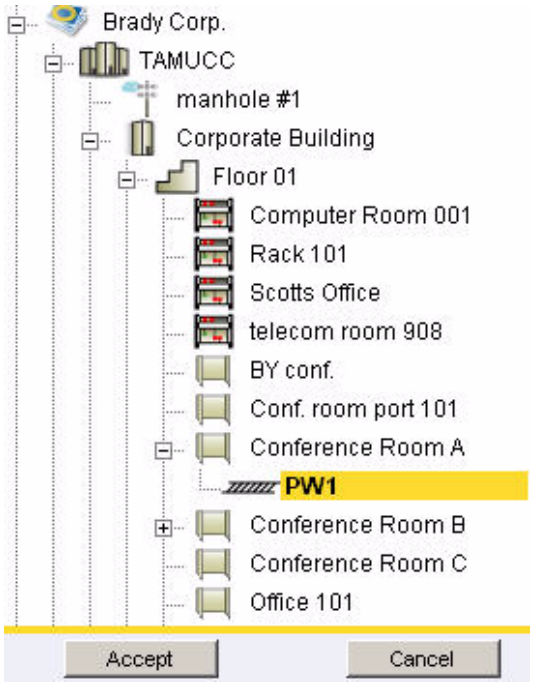
11. Click **Save** to save all input information.



Conductor Pathways Used

To ground a pathway:

1. Click the **Connected Pathways** tab, and then click **Add**.
2. In the *Select Location* window, highlight the pathway you want to ground.
3. Click **Accept**. The *Pathway ID*, *Pathway Type*, *Source Space ID*, and *Dest Space ID* are populated.
4. Click **Save** to save all input information.



Firestops

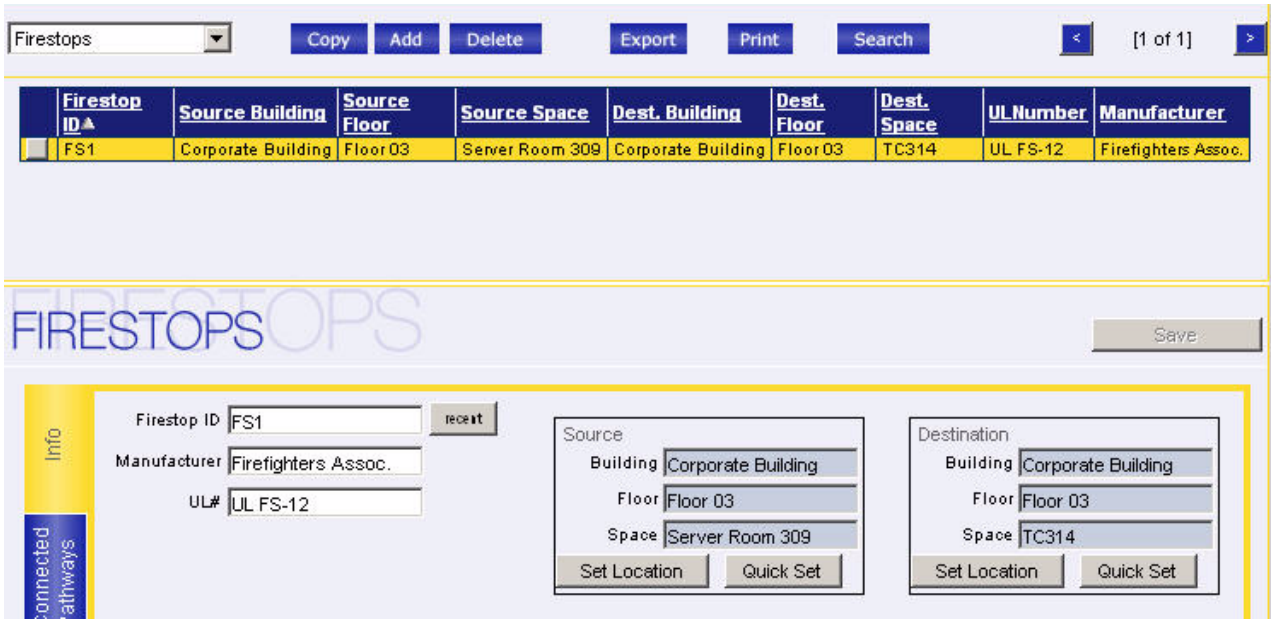
A firestop is needed any time you penetrate a firewall (i.e., a floor, ceiling, or wall). The firestop provides a fire barrier in case there is a fire in your facility. Each firestop has a burn-time limit associated with it—a rating in hours.

Adding a Firestop

To add firestops in your infrastructure:

1. On the *Navigation Tree*, highlight the space where the firestop material will be located.
2. In the *List View* pane drop-down list, select the **Firestops** category.
3. In the *List View* pane, click **Add**. In the *Firestop Info* tab, the *Source* box shows the space highlighted in the Navigation Tree.
4. In the *Info* tab, enter the **Firestop ID**, **Manufacturer**, and **UL# fields**.
5. In the *Destination* box, click **Set Location**.
6. In the *Location* window, highlight the destination for the firestop, and click **Accept**.
7. Click **Save.**

Note: Only the Firestop ID and the Destination are required to save Firestop information.



Connecting a Firestop to a Pathway

Connecting a firestop to a pathway must be done via the *Pathways—Connected Firestops* tab. See *"Connecting a Firestop to a Pathway" on page 1-119*.

The Connected Pathways tab displays information from the Pathways category. When you connect to a firestop from a pathway, the information will display on this tab. You cannot connect to a pathway from this tab.

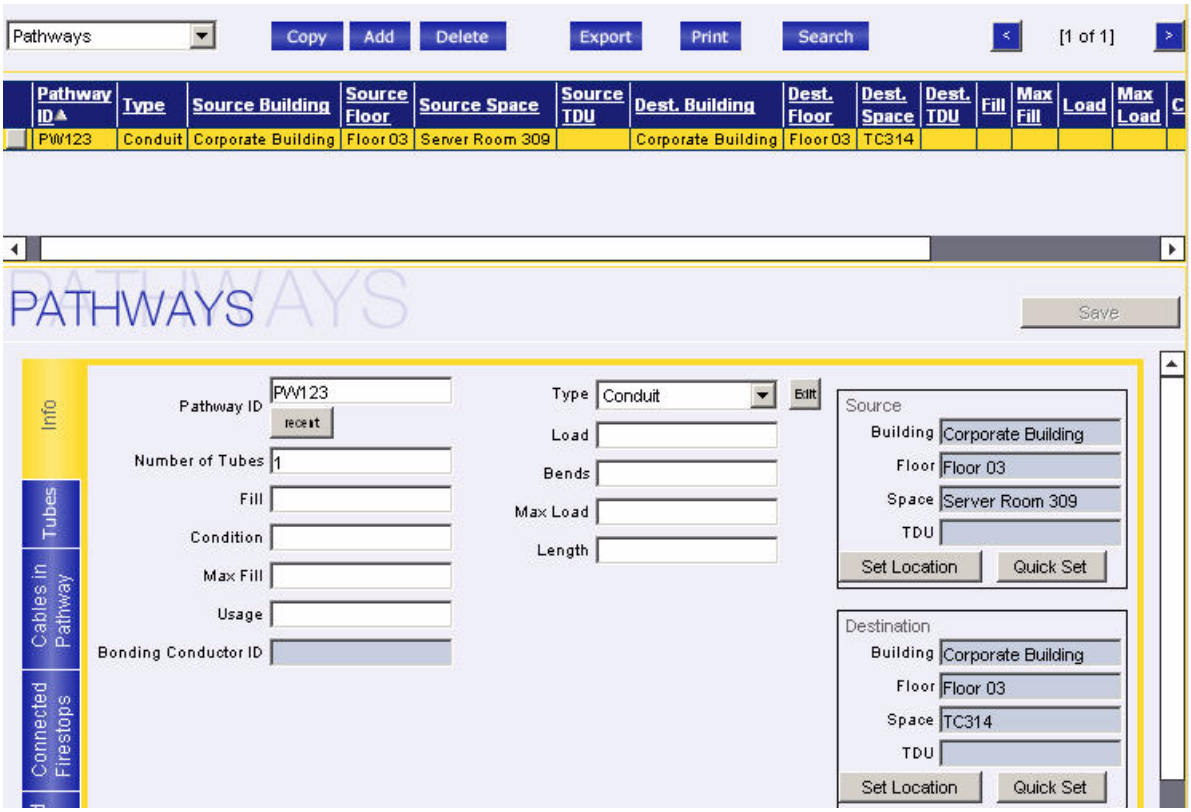
Pathways

Pathways house and transport cables within your company's infrastructure. Pathways can be set up at any time, but to connect them to backbone cables, termination hardware, or horizontal links, pathways should be set up first. (See *"Termination Hardware " on page 1-82*; *"Horizontal Links (HL)" on page 1-92*; and *"Backbone Cables" on page 1-105*).

Adding a Pathway

To add Pathway Info:

1. In the *Navigation Tree*, highlight the space that will be the "source" space for the Pathway.
2. In the *List View* drop-down list, select **Pathways**.
3. Click **Add**.
4. Enter the **Pathway ID**.
5. From the pathway *Type* drop-down list, select the type of pathway being used for this space (e.g., Aerial, Cable Tray, Conduit, Innerduct, OSP Conduit, OSP Raceway, or Raceway).
6. In the *Destination* box, click **Set Location**.
7. Choose a destination location for the pathway, then click **Accept**.
8. Click **Save**.



Adding Tubes in Pathways

Tubes are usually used with airblown fiber cables. You must set the pathway source and destination before you can add or connect tubes. The source and destination pathways can be set from the **Info** tab.

To add tubes:

1. On the *Navigation Tree*, locate the space where you want to add a pathway tube. The Source and Destination information will display on the *Info* tab.
2. On the *Info* tab, enter the number of tubes you want to add for this pathway.

   Note: There are no limits to the number of tubes that can be added.

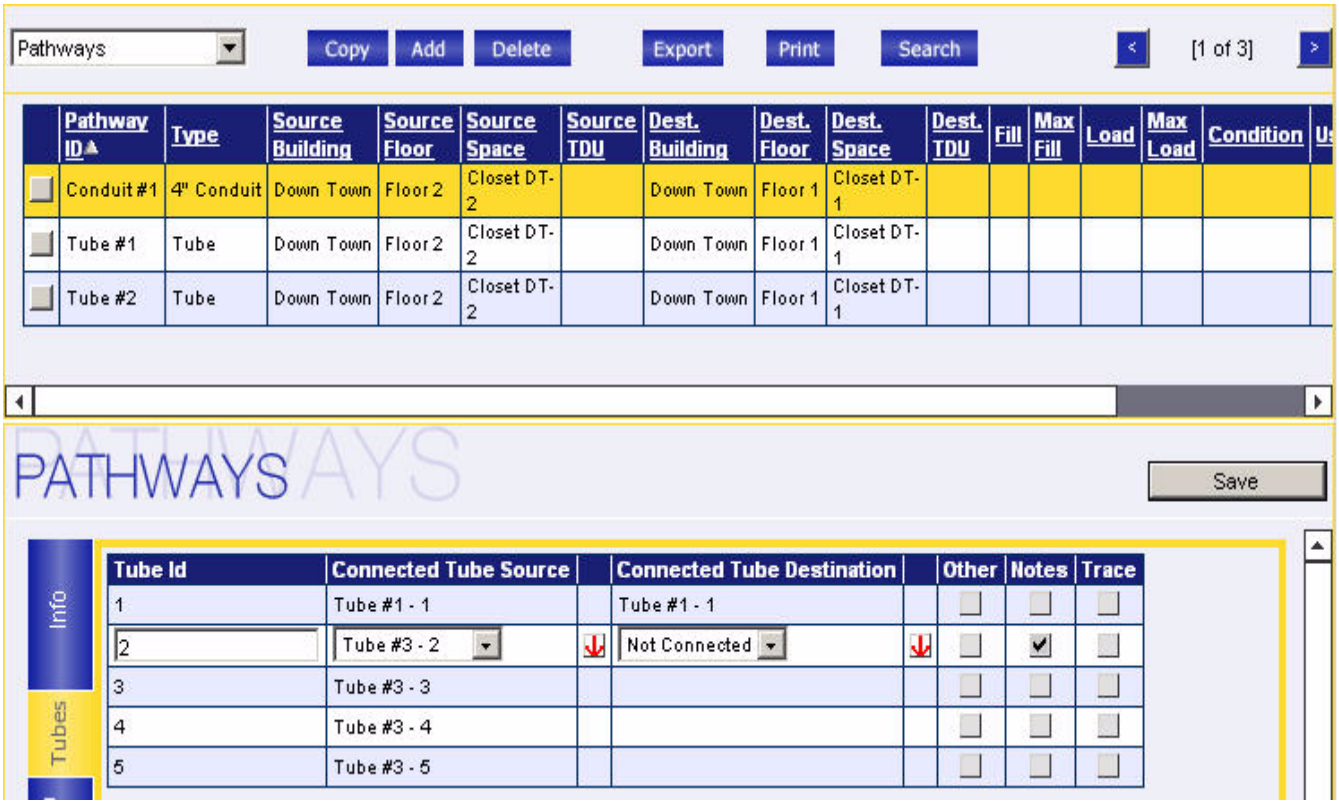
3. Click the **Tubes** tab.
4. If desired, enter a new **Tube ID** for each of the tubes you are adding.
5. From the *Connected Tube Source* list, select one of the unconnected source tubes.

   Note: All unconnected tubes are listed for both the Source and Destination you have selected. For example, if you choose Floor 1, all unconnected source and destination tubes for Floor 1 will be listed.

6. From the Connected Tube Destination list, select one of the unconnected destination tubes.
7. To connect all unconnected tubes for this location and pathway, in sequence, select the tube source or destination and click .

8. To add **Notes** or **Other** information, click the box in the appropriate column. When information is added, a check mark will display in the associated box.

Note: The Trace box does not display a checkmark even if a trace is available.



Cables in Pathways

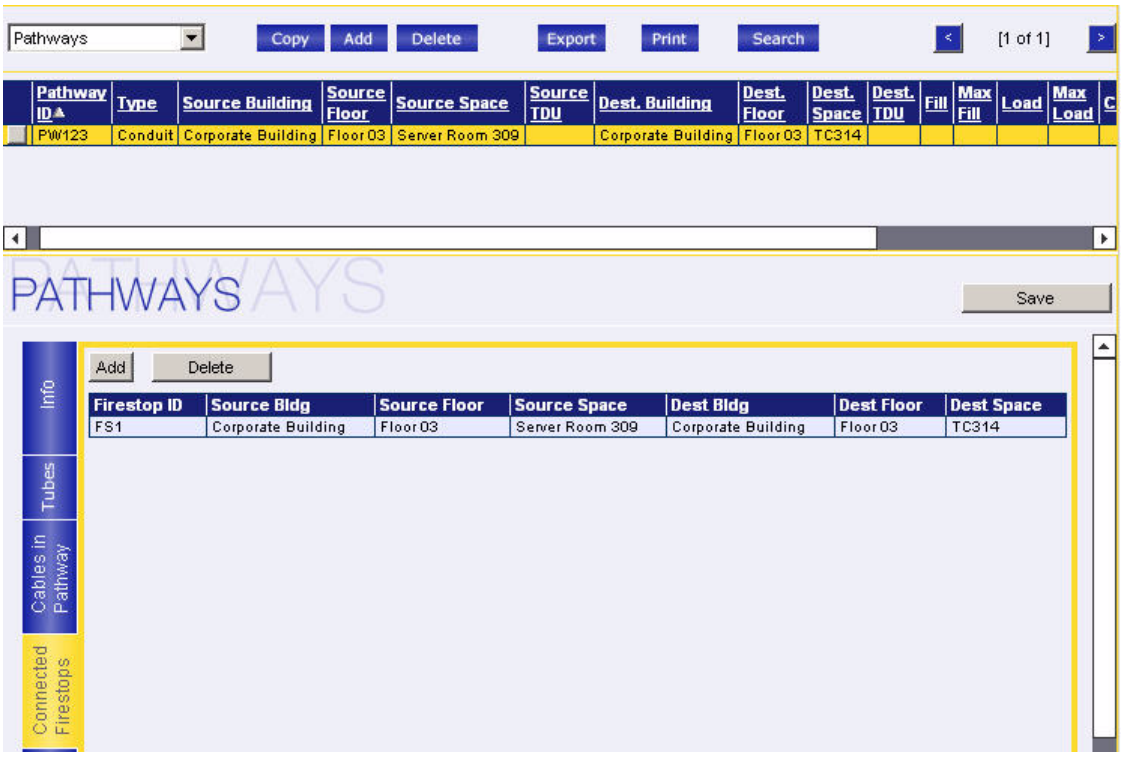
The *Cables in Pathways* tab shows all of the horizontal links and backbones connected to the selected pathway. To specify that a cable use a particular pathway, you must set up the link from that cable's *Pathways Used* tab. See *"Horizontal Links (HL)" on page 1-92* and *"Backbone Cables" on page 1-105*.

Connecting a Pathway to a Firestop

Firestops must first be set up in the Firestops tab.

To connect a pathway to a firestop:

1. On the *Pathways Detail View* for the selected pathway, click **Connected Firestops**.
2. In the *Detail View*, click **Add**.
3. In the *Location* window, highlight the firestop to which you want to connect, and click **Accept**.
4. Click **Save.**



Connecting the Pathways

All pathways that are set up within your facility can be interconnected. However, in some situations, it would not be reasonable to connect certain pathways together (e.g., pathways in different buildings). Use the connections judiciously.

To connect to another pathway:

1. On the *Pathways Detail View* for the selected pathway, click **Connected Firestops**.
2. In the *Detail View*, click **Add**.
3. In the *Location* window, select the pathway to which you want to connect, and click **Accept**.
4. Click **Save.**

Contacts

Adding a Contact

NetDoc™ does not require you to add contacts to manage your infrastructure. However, your company may want to list contacts, such as users, outside consultants, contractors, support, and the horizontal links associated with their workspaces for your internal network users.

The Contacts utility is also a practical place to keep track of employees and their workspaces, as well as the assets they use.

To add a contact:

1. From anywhere in the *Navigation Tree*, choose **Contacts** from the drop-down list in the *List View*. All previously-entered contacts will be listed
2. In the *Contacts Detail View*, **c**lick the **Info** tab, then click **Add**.
3. Enter the **First Name** and **Last Name** fields. These are the only required fields.
4. (Optional) Enter Employee ID, Department, Title, E-mail, and Phone Number, User Name, Passwords, Permission Levels, and User Type.
5. To enter Contact information from a space other than the user's workspace:
   a. In the *Location* box, click **Set Location**.
   b. Navigate to the workspace where the user is located and click **Accept**.

Defining a Contact

NetDoc™ comes with many pre-defined Contact types. However, you can also define your own types.

To define a contact type:

1. In the *View Detail* area to the right of the **User Type** field, click .
2. In the *Customizable Fields* window, click **Add**.
3. In the newly-added row, enter the contact **Type** and up to **10** descriptions.
4. Click **Save** to save your input.

To delete a contact type

1. In the *View Detail* area to the right of the **User Type** field, click .
2. Click the user type you want to delete, then click **Delete**.
3. Click **Save**.

Adding Departments

You can add new departments in the *Departments* field. The new department will become a selection in the drop-down list available when you are recording other users.

To add a new department:

1. Enter the users **First Name** and **Last Name**.

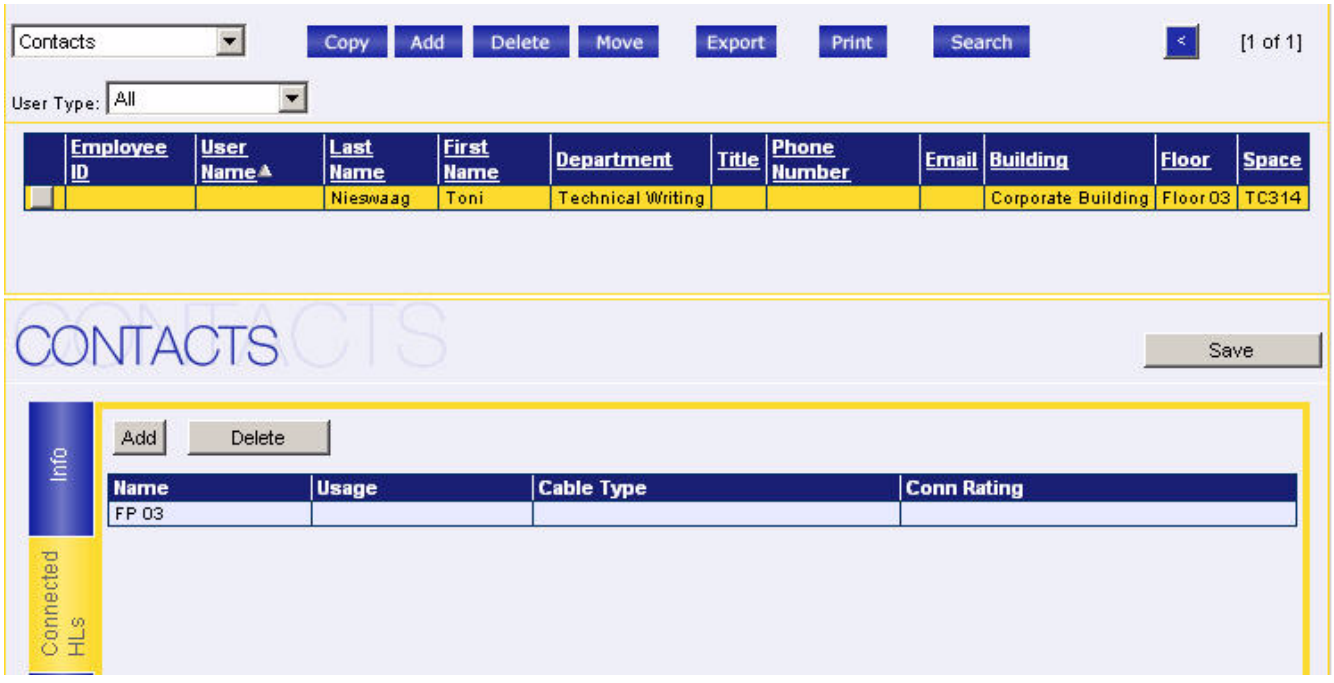
1. Click Edit next to **Department**.
2. Enter the new department name.
3. Click **Save**. The new department will be added to the drop-down selection list.

Connecting a User to Horizontal Links

You may assign horizontal links to the selected user on the *Connected HLs* tab. If a horizontal link has already been connected, it will display when you click the tab. One user may be assigned to several horizontal links.

To connect a user to a horizontal link:

1. In the *Connected HLs* tab, click **Add**.
2. In the *Horizontal Link* window, click the HL to which you want to connect.
3. Click **Accept**.
4. Click **Save** to save the information.



Creating NetDoc™-Specific Users

You can use the Contacts area to manage the users with access to **NetDoc™**. When adding users, give each a User name in the *Contacts Info* tab on the Detail View. If you have Administrator permission, you can then select the permission level of read/write access for that user: Read Only, Administrator, or None.

Note: Only Administrators see the permission-level fields and are allowed to build users and grant specific access levels to those users.

See *"Configuring Security for NetDoc Login (optional) "* on page 5 of the Administrators Guide for security level descriptions.

Appendix A - Product Functionality

Product Functionality

Termination Hardware

Termination hardware for all cabling infrastructure is easy to set up. **NetDoc™** makes it simple to locate termination hardware when you need to move cabling; it's also easy to track ports/positions and how each is being used. (See *"Termination Hardware " on page 82*.)

Ability to see termination hardware port/position details/status

You can see status and details of termination hardware ports/positions. The Port/Pos. The Details tab of the Termination Hardware feature lists the ports/positions, Cable Type, Cable ID, and Backbone Pairs/Strands. There is also an editable Status column that will automatically show Available or Used status, and which you can edit to Damaged should a port/position become damaged. (See *"Termination Hardware " on page 82*.)

Cross-Connects

Cross-Connects between backbone cables, between horizontal links and a backbone cable, and between a backbone cable and an asset are now easy input and tracked. (See *"Horizontal Links (HL)" on page 92* and *"Backbone Cables" on page 105.)*

Firestops

You can keep track of the location and type of every firestop in your infrastructure. When new cabling entrances through firewalls are created, the associated new firestop can be recorded. In addition, firestops can be connected to pathways via the Pathways tab. (See *"Firestops" on page 118* and *"Pathways" on page 120*.)

Grounding

Grounding for backbone cables, assets, pathways, and termination hardware can be set up in **NetDoc™**. The busbar and conductors can be connected to pathways. (See *"Grounding" on page 114*.)

Splices

You can track the splices in backbone cables in **NetDoc™**. (See *"Splices" on page 103* and *"Adding a Backbone Cable" on page 105.)*

Pathways

Pathways that house and transport cables within a company's infrastructure are easily tracked in **NetDoc™**. The pathways can be interconnected. Cables in the pathway are listed. (See *"Adding a Pathway" on page 120*.)

Ability to see backbone pair/strand details/status

The Pair/Strand Details tab of the Backbone Cables feature allows you to see and track source and destination of cables, ports/positions, and whether the pairs/strands are available, used, or damaged. (See *"Backbone Pair/Strand Details Tab" on page 109*.)

Filtering Logic—Navigation Tree

The information you see in the List and Detail View sections on the right side of the window is filtered by your location in the Navigation Tree. For example, if you highlight a campus, and then select Horizontal Links, you will see all the HLs for the entire campus. If you highlight a Faceplate, you will see only the HL(s) for that Faceplate. (See *"Navigation Tree" on page 5*.)

Reports

With **NetDoc™**, reports are output to HTML. When generated, they will appear as you have specified them in your web browser, and can be printed in color. (See *"REPORTS MENU" on page 31*.)

Reporting capabilities include the ability to print details of any record directly from List View. Report types include Asset details, Space details, TR details, and Backbone, Horizontal Link, and Mainframe information. (See *"REPORTS MENU" on page 31*.)

NetDoc™ sorting/filtering/grouping logic means that you can create reports showing only information you actually need at a given time. It's easy to make reports specific to details of your cabling infrastructure. (See *"REPORTS MENU" on page 31*.)

Appendix B - Glossary of Terms

Air-Blown Fiber (ABF)

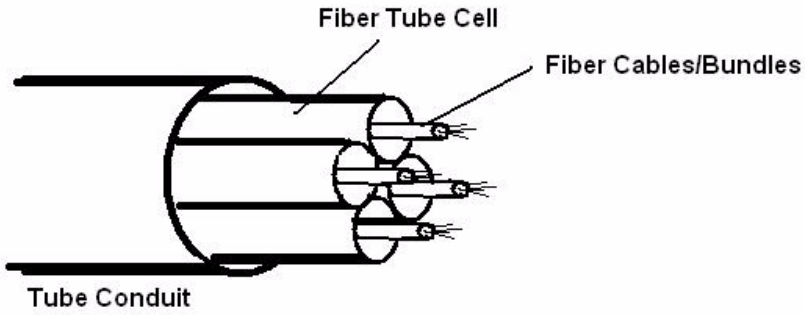
Air-blown fiber-optic cabling systems deliver all the benefits of fiber-optic transmission without the high infrastructure investment and ongoing maintenance costs of conventional fiber systems. ABF systems are typically less expensive to upgrade or reconfigure as the network evolves and requirements change.

A flexible tube cable (conduit) can contain up multiple fiber-optic tube cells, which can be joined in tube distribution units (TDUs), or junction boxes. TDUs replace conventional fiber splice hardware at tube-cable transitions and branching locations to provide point-to-point connectivity between the computer room or network hub and the application.

Once the tube-cable infrastructure is installed, bundles of optical fiber are blown through a predefined route on a stream of nitrogen, using specially designed equipment. The fiber path may traverse outdoor, riser, and plenum tubes in a single run. Since the fibers are blown rather than pulled, installation damage is not an issue.

Network expansion can be done quickly by extending tube cables from the nearest TDU. Fiber bundles can be upgraded or replaced by blowing cable through unused cells or by blowing out old fiber and blowing in new-all without disrupting the existing network.

Space is also maximized, since ABF bundles are significantly smaller than conventional fiber cables.



Assets

Any physical piece of hardware (e.g., phone, PC, modem, power supply, light fixture, etc) that is connected to the facility data communications structure.

Asset ID

The name (Asset ID) of a port on an Asset. If there are multiple ports on an asset, the Asset ID must be identified.

Backbone

See Backbone Cables.

Backbone Cables

Typically considered to be a horizontal or vertical distribution cable. Backbone cables connect the entrance facility to various floors or telecommunications spaces and equipment rooms or across a campus. Backbone cables include main and intermediate cross-connects, mechanical terminations, and patch cords or jumpers used for backbone-to-backbone cross-connections. Backbone cables can be *Intrabuilding* (cables that run within one building) or *Interbuilding* (cables that run from a TS in one building to two or more TS's in another building).

Backbone Pairs

Network cabling that consists of four pairs of wires that are manufactured with the wires twisted to certain specifications. Available in shielded and unshielded versions.

Backbone Raceways

A series of access points that connect the entrance facility to the various floor-wiring closets that permit cables to be placed between the floors.

Building

Facilities containing spaces that house components of the cabling infrastructure (i.e., both telecommunications spaces and work areas). Your company may have one building, or numerous buildings (campus) that can be interconnected by cabling components.

Cable Management System (CMS)

A system that supports telecommunications cabling for a multi-provide, multi-vendor environment. It provides a uniform administration approach that is independent of applications. It establishes guidelines for owners, end users, facilities and administrators. A CMS must be able to document multiple media and mixed media horizontal cabling, including copper, fiber optic and coaxial cables.

Campus

A collection of buildings and grounds that operate as one continuous facility (e.g., multi-building corporate headquarters, university buildings, etc.). A company may have only building, however, many companies conduct business in a number of locations. The campus feature makes it possible to manage infrastructure specific to each location.

Color Coding

A method to simplify infrastructure administration and maintenance by making the structure of the cabling more intuitive. Cross-connections generally connect termination fields of different colors. Typical color coding is:

- **Orange**: Demarcation point; central office connection.
- **Green**: Network connection; user side of central office connection.
- **Purpose**: Common equipment; connections to PBS, mainframe computer, LAN, multiplexer.
- **Red**: Key system; connections to key telephone systems.
- **White**: First-level backbone; terminations of intrabuildilng backbone cable connecting to MC to ICs.
- **Grey**: Second-level backbone; termination of backbone cable between bulidings.
- **Brown**: Interbuilding backbone; termination of backbone cable between buildings.
- **Blue**: Horizontal; terminations of horizontal cable in TS.
- **Yellow**: Other; alarms, security or energy management.

Company

The company is the highest-level component in **NetDoc™** and is the starting point for managing your cabling infrastructure. Even if you only manage the infrastructure for a single company, you still need to define the company before setting up cabling infrastructure.

Cross Connect (XC)

Connecting hardware used to patch between two groups of cables (e.g., horizontal to backbone). Usually located in a telecommunications closet or equipement room.

Crossover Hub

Two machines can hook together with a simple crossover cable, but otherwise every machine on the network must have its own single lead to a port on the hub. The hub, therefore, must have enough ports to support the number of machines you want to network. Multiple hubs can be connected together to allow larger networks.

Descriptors

In many cases, a descriptor will be needed for an element of a pathway, space or devide. See Appendix C for a list of commonly used descriptors.

Entrance Facility

Location where cabling enters the building. Cabling often enters the building underground. Three or more conduits are usually required to connect an entrance wiring closet (TC) to the nearest manhole (outside space) or other location with telecommunications facilities. An entrance facility may also contain campus-wide backbone connections

Entrance Wiring Closet

See Telecommunication Closet.

Equipment Rooms and Main Cross-Connects

An equipment room provides a termination point for backbone cabling that is connected to one or more telecommunication closets. It may also be the main cross-connection point for the entire facility. In a campus environment, each building may have its own equipment room, to which telecommunication closet equipment is connected, and the equipment in this room may then be connected to a central campus facility that provides the main cross-connect for the entire campus.

Faceplates

A fixed connection where a horizontal cable terminates and work area equipment can be connected. Also referred to as outlets. While many elements of cabling infrastructure can be added after the geographical infrastructure is set up, faceplates should be set up first.

Fiber Optic Cable

An optical fiber cable is a cable containing one or more optical fibers. The optical fiber elements are typically individually coated with plastic layers and contained in a protective tube suitable for the environment where the cable will be deployed.

Firestops

A firestop is used to seal openings in fire-resistant wall and/or floor assemblies. The material between cabling systems is intended to prevent the passage of flames from one cable system to an adjacent cabling system. Unprotected openings void the fire-resistance ratings and affect the fire safety plan of the entire building.

Floor

A structure that divides a building horizontally into stories. A building may have only one, or multiple, stories.

Floor Wiring Closet

See Telecommunication Closet.

Grounding

Grounding runs excess electrical current to ground. Grounding is needed for backbone cables, assets, pathways, and termination hardware.

Grounding Busbar

See Telecommunications Main Grounding Busbar (TMGB).

Horizontal Link

The cabling between and including the telecommuncations outlet/connector and the horizontal cross-connect termination hardware. Often referred to as the workstation cabling, horzontal cabling or user drop. A horizontal wiring system runs from the faceplate in each work area to the telecommunication space.

The horizontal cabling system includes the telecommunications faceplate, an optional consolidation point or transition point connector, horizontal cable, and the mechanical terminations and patch cords (or jumpers) that comprise the horizontal cross-connect.

Horizontal Raceway

See Horizontal Links.

Horizontal Wiring

See Horizontal Links.

Horizontal Cross Connect

A wiring closet where the horizontal cabling connects to a patch panel, which is connected by backbone cabling to the main distribution facility.

Identifiers

A unique identifier associated with each element of the infrastructure which serves as the key to finding the recorded information in the cable management system.

IP Address

An Internet Protocol (IP) address is a numerical identification (logical address) that is assigned to devices participating in a computer network using the Internet Protocol for communication between its nodes.

Labeling

The size, color and contrast of all labels should be selected to ensure that the identifiers are easiliy read. Labels should be visible during the installation and normal maintenance of the infrastructure. Labels should be resistant to the environmental conditions at the point of installation (e.g., moisture, heat or ultraviolet light) and should have design life equal to or greater than the labeled component. To maximize legibility, all labels should be printed or generated by a mechanical device and not be hand written.

Linkages

Linkages support the retrieval of information about the telecommunications infrastructure from administration records. When administration is performed with cable management software, linkages should be provided between each appearance of an infrastructure identifier in a record or any record for which that identifier is the primary indexing identifier. Linkages to additional records in which the identifier appears are also desireable.

LU

Logical Unit.

MAC Address

Medial Access Control address (MAC address). Also known as Ethernet Hardware Address (EHA), hardware address, adapter address or physical address. A MAC address is a quasi-unique identifier assigned to most network adapters or network interface cards (NICs) by the manufacturer for identification.

Multi-User Termination Outlet Assembly (MUTOA)

A work area faceplate designed to support multiple users in one location.

Main and Intermediate Distribution Frame

A secure location where back boards and cross-connecting blocks can be mounted for the proper installation and cross connection of key/PBX telephone systems, CO lines and system extensions for the voice side of the network. May include racks to support patch panels, cable trays and wire management devices for the patching of network cables to layer 2 and layer 3 devices.

Mainframe PU

Mainframe Physical Unit.

Outdoor Space

An outdoor space such as a Manhole or a Utility Pole that connects to a building.

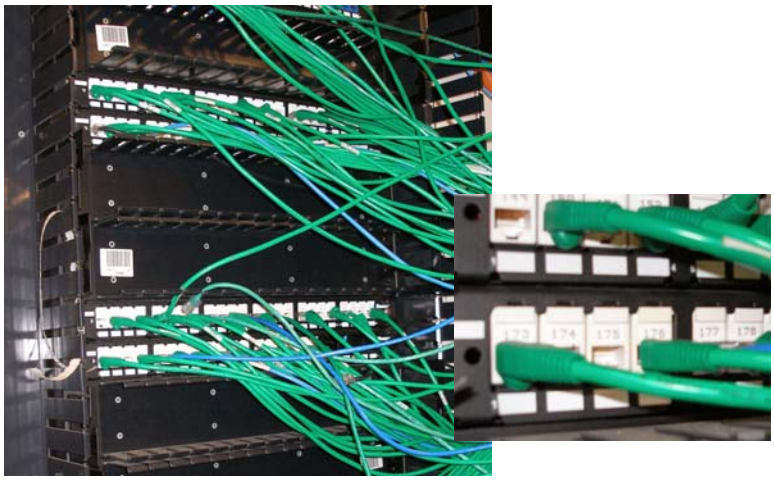
Patch Cord

A length of cable with connectors on the ends used tojoing telecommunications links at a cross-connect.

Patch Panel

Also called a Patch Bay. A panel, typically rack mounted, that houses cable connections and used to modify, reconfigure or administer communications networks. Usually, a shorter patch cable will plug into the front side, while the backside holds a much longer and more permanent cable. The hardware assembly is typically arranged so that the same or similar type of circuits appear on jacks for monitoring, interconnecting, and testing circuits in a convenient, flexible manner. Patch panels can have any different types of electrical connectors, often with a different type on the front than the back. If it has a compound connector on the back and individual ones on the front, it is also a breakout box.

Patch panels allow technicians to quickly change the path of select signals without the expense of dedicated switching equipment.



Pathways

An intra- or inter-building pathway element that is a cabling support vessel typically connecting one space to another, or that runs the span of a common routing cable route, but resides in one space. Pathways can be set up at any time, but to connect them to backbone cables, termination hardware, or horizontal links, pathways should be set up first.

Racks

A vertical or horizontal open shelf structure (support), usually made of aluminum or steel, that is attached to a floor, ceiling or wall. Cables are laid in and fastened to the rack and connected to the equipment.

A 19-inch rack is the standard for mounting various modules in a "stack," or rack. Equipment designed for placement in racks can also be described as rack-mount, a rack mounted system, a rack mount chassis, subrack, or even shelf. Because racks originated as mounting systems for railroad signaling relays, they are still sometimes called relay racks.

Records

Each required record type defines a primary indexing identifier to facilitate linkage between infrastructure identifiers and records. See also Linkages.

Report

The means by which information about the telecommunications infrastructure is communicated. A report may consist of an individual record, a group of records or selected portions of one or more records. Cable management software makes all of the records in the telecommunications infrastrucutre available to the operator.

Riser

The conduit path between floors of a building. In **NetDoc™**, referred to as a horizontal link.

Space

Any area that can house components for the infrastructure. Spaces can include manholes, telecommunication closets, rooms, work areas, etc.

Splices

The physical joining of two or more copper conductors or optical fibers to form a continuous circuit/conductor; a terminal that permanently joins two or more wires. Backbone cables between termination hardware often need to be spliced together. The splice is housed in a container known as a closure. Multiple splices can be housed within one closure.

Structured Cabling Design

Design and installation is governed by a set of standards that determine how to wire a data center, office or building for data or voice communications. These standards define how to lay the cabling in a formation so that all outlets terminate at a central patch panel (usually a 19-inch rack mount). Each outlet can be ‘patched’ into a data network switch or patched into a telecommunication patch panel that forms a bridge into a private branch exchange (PBX) telephone system, thus making the connection a voice port.

It is normal to see different color patch cables used in the patch panel to help identify which type of connection is being carried. Cabling standards require all eight connectors in Cat5/5e/6 cable are connected, resisting the temptation to 'double-up' or use one cable for both voice and data.

Structured Cabling Infrastructure

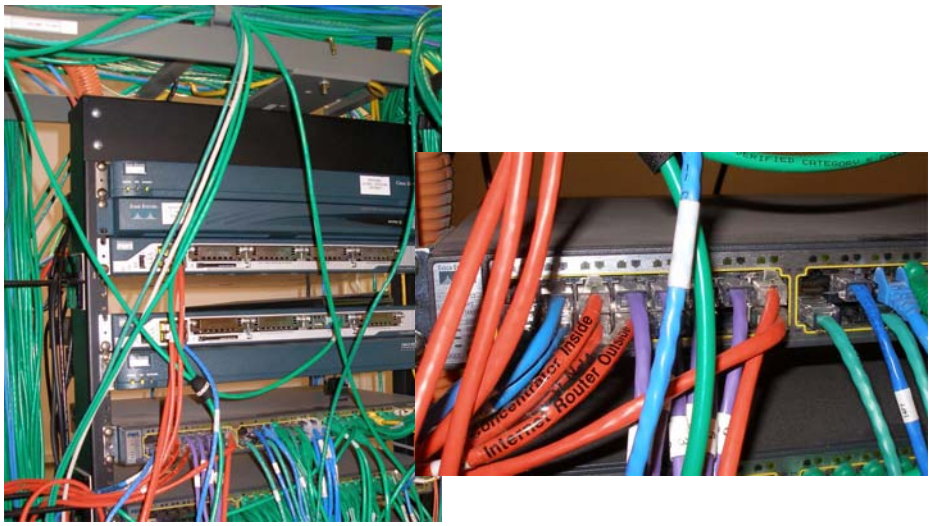
A building or campus telecommunications cabling infrastructure that consists of a number of standardized smaller subsystems. Structured cabling includes the following six sub-systems:

- *Entrance Facilities*: where the cable enters the building from the outside world.
- *Equipment Rooms*: Contains equipment that serves users inside the building.
- *Telecommunication Rooms*: Location of telecommunications and data equipment that connects the backbone and horizontal cabling sub-systems.
- *Backbone Cabling*: Carries signals between the entrance facilities, equipment rooms and telecommunications rooms.
- *Horizontal Cabling*: Wiring from telecommunications rooms to the individual floor outlets.

Switches

Dedicated switching equipment that can be used in conjunction with, or as an alternative to, patch panels. Switchers can simplify signal routing, and also provide other benefits, including simultaneously routing a signal to multiple destinations.

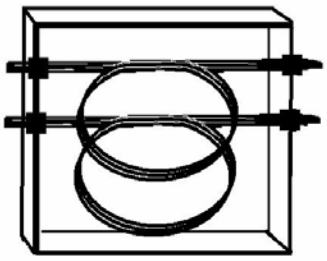
Switching equipment may be electronic, mechanical, or electro-mechanical. Some switcher hardware can be controlled via computer and/or other external devices. Some have automated and/or pre-programmed operational capabilities. There are also software switcher applications used to route signals and control data within a "pure digital" computer environment. Switching equipment that can emulate patch panels is typically much more expensive.



TDU

An air-blown fiber-optic tube cable (conduit) can contain up multiple fiber-optic tube cells, which can be joined in tube distribution units (TDUs), or junction boxes. TDUs replace conventional fiber splice hardware at tube-cable transitions and branching locations to provide point-to-point connectivity between the computer room or network hub and the application.

Tube Distribution Units (TDUs), or junction boxes, are wall-mounted enclosures or rack-mounted panels used at tube cable transitions or branching locations. Tubes are joined together using push-fit connectors. This results in a pathway between the network hub and workstations or other sites and functions supported by the tube cable infrastructure.



TDUs are not visible on the Navigation Tree. They can only be viewed by clicking the TDU radio button from within the Space where the rack resides. When a TDU is added, the Navigation Tree indicates a (-) next to the icon for the Space.

Telecommunications Closets (TC)

See Telecommunications Space.

Telecommunications Ground Busbar

A telecommunications ground busbar typically resides in a TS that does not have a grounding source and is connected to the TMGB by a grounding conductor. It is also used to ground all telecommunications equipment and cabling that requires a grounding connection.

Telecommunications Main Ground Busbar (TMGB)

A telecommunications main grounding busbar (TMGB) is the busbar tied directly to the grounding source and is used to ground all telecommunications equipment and cabling that require a grounding connection.

Telecommunicaton Room (TR)

A room where all workstation cabling runs to.

Telecommunication Space (TS)

A dedicated area used for housing the installation and termination of telecommunications equipment and cables
(e.g., equipment rooms, telecommunication rooms, work areas and maintenance holes/handholes). A TS may also be used for intermediate and main cross-connects.

There is no limit on the number of telecommunication spaces allowed. Some floors in multi-story office buildings may have multiple telecommunication spaces, depending on the floor plan. These may be connected to an telecommunication room on the same floor.

Termination Hardware

Any piece of hardware that terminates a circuit or conductor.

Tubes

A semi-rigid, hollow plastic tube that houses and protects a number of optical fibers. The fibers can be either individually coated or organized into coated ribbons. An outer polyethylene jacket surrounds the entire cable. Loose-tube cable is used in outside plant (OSP) applications, where extremes of temperature, rough handling, and mechanical disturbances make tight buffered cable unsuitable.

UTP

Unshielded twisted pair. Twisted-pair copper cables without metallic braid shielding — capable of high-speed voice and data transmission. The most common cabling used in the U.S. in structured wiring.

Wallboxes

See Faceplates.

Work-Area Components

Connect end-user equipment to the horizontal cabling system. The location where telecommunications cabling is connected to work area equipment (e.g., PCs, telephones) by means of a faceplate.

Work Area

Also called a workspace or work station. Consists of communication outlets (wallboxes and faceplates), wiring, and connectors needed to connect the work space equipment (computers, printers, etc.) via the horizontal wiring subsystem to the telecommunication closet. The standard requires two outlets at each wall plate: one for voice and one for data.

Appendix C - Descriptors

Commonly Used Descriptors

The following table shows examples of commonly-used descriptors.

Outdoor Space		Pathway		Space	
MH	Maintenance Hole	BR	Branch Splice	AP	Access Port
HH	Handhole	BS	Bridge Splice	APS	Access Provider Space
BR	Bridge	CB	Cabinet	CER	Common Equipment Room
TN	Tunnel	CN	Conduit	CTR	Common Telecommunications Room
TP	Telephone Pole	CT	Cable Tray	CO	Central Office
DB	Direct Buried Locale	FR	Frame	DM	Demarcation (NI)
SM	Submerged Locale	GB	Ground Bar	ER	Equipment Room
EN	Entrance	NT	Node	NOC	Netowrk Operations Center
VL	Vault	PB	Pull Box	RO	Repeater Office
PE	Pedestal	PN	Penetration	SPS	Service Provider Space
RT	Roof Top	RK	Rack	SR	Switch Room
		RR	Ring Rung	STAR	Logical Center of the Data Network
		SL	Sleeve	SZ	Serving Zone
		SS	Straight Splice	TER	Telecommunication Entrance Room
		ST	Slot	TR	Telecommnications Room
		TR	Tray	TS	Tenant Space
				WTRS	Wireless Transmission & Reception Space
				WS	Workstation Location

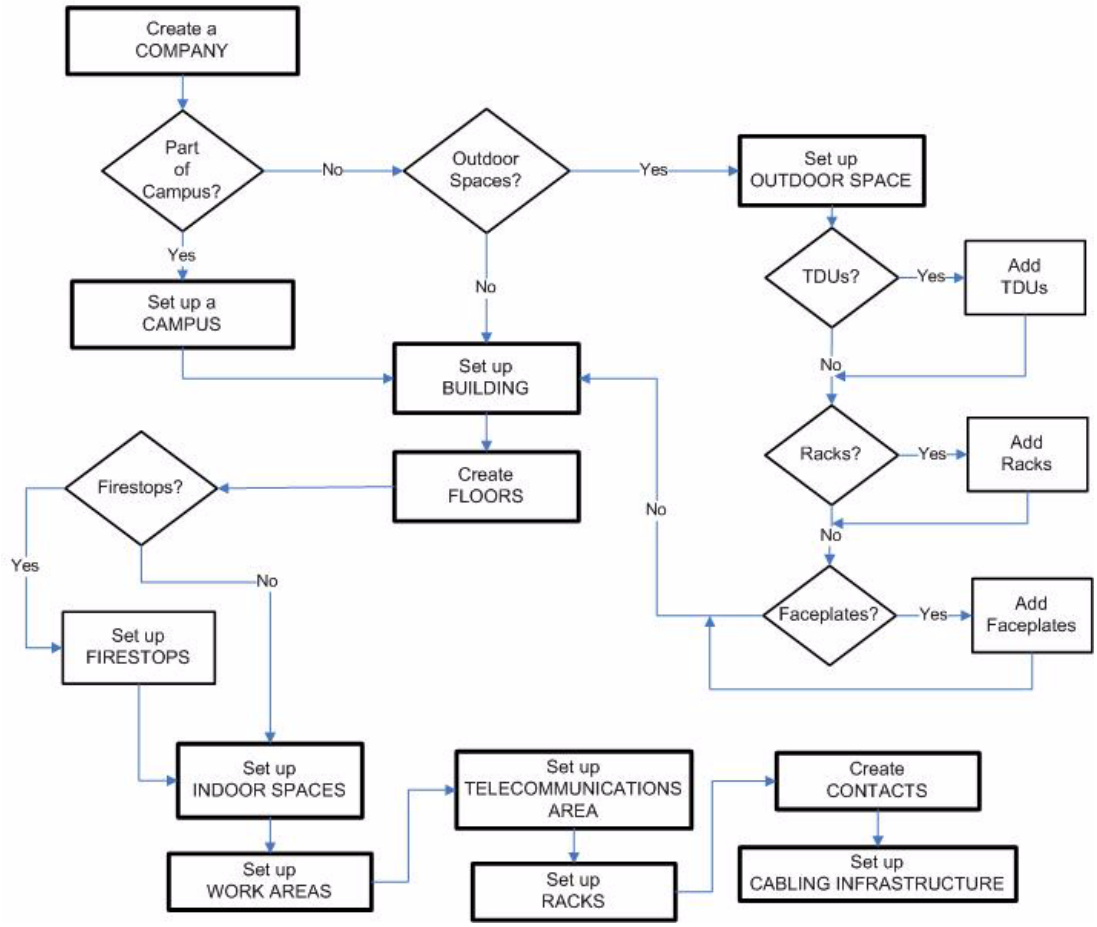
Outdoor Space		Pathway		Space	
Device					
AMP	Amplifier	MDM	Modem	STK	Strike
ANL	Analog	MIC	Microphone	STR	Strobe
CMR	Camera	MNT	Monitor	TEL	Telephone
CS	Chassis	PAY	Payphone	TTY	Tele Type
CI	Carrier ID	PC1	PC	TV1	Television
DIG	Digital	RDR	Reader	WLP	Wall Phone
DLR	Dialer	RS	Remote Shelf		
FAX	Fax	SF	Shelf		
GBR	Glass Break	SNS	Sensor		
HNS	Handset	SPK	Speaker		

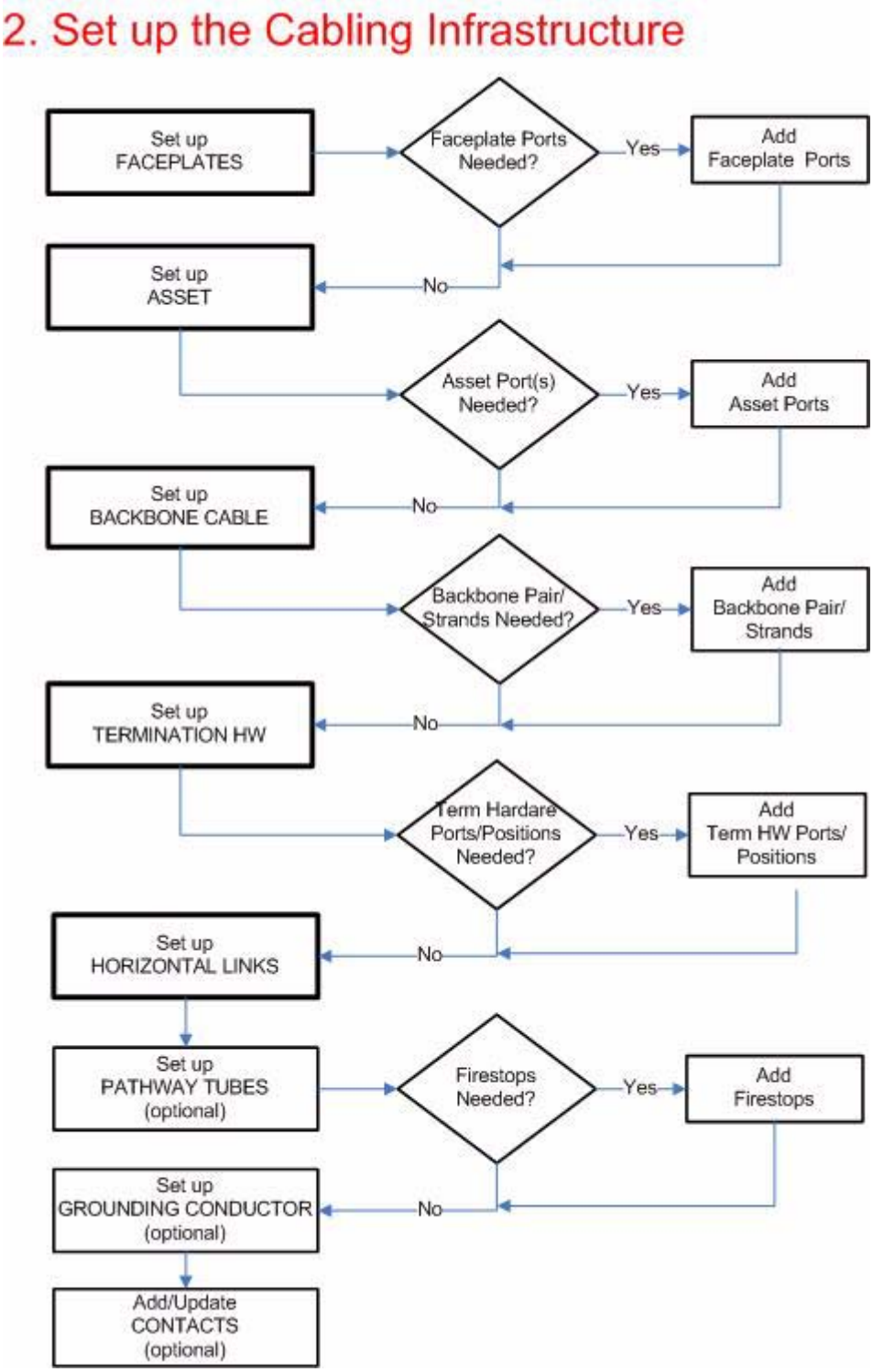
Appendix D - Infrastructure Setup

Infrastructure Setup and Documentation

There are multiple ways to set up your company and its infrastructure. As an open, user-friendly CMS package, each organization can document and label according to their selected methods. The following flowcharts show one example of how you can setup and document the infrastructure for your company.

1. Set up the Geographical Infrastructure




2. Set up the Cabling Infrastructure
Set up FACEPLATES
Faceplate Ports Needed?
Yes
Add Faceplate Ports
No
Set up ASSET
Asset Port(s) Needed?
Yes
Add Asset Ports
No
Set up BACKBONE CABLE
Backbone Pair/ Strands Needed?
Yes
Add Backbone Pair/ Strands
No
Set up TERMINATION HW
Term Hardare Ports/Positions Needed?
Yes
Add Term HW Ports/ Positions
No
Set up HORIZONTAL LINKS
Set up PATHWAY TUBES (optional)
Firestops Needed?
Yes
Add Firestops
No
Set up GROUNDING CONDUCTOR (optional)
Add/Update CONTACTS (optional)

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